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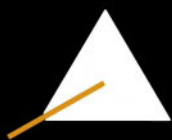


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IMAGE**

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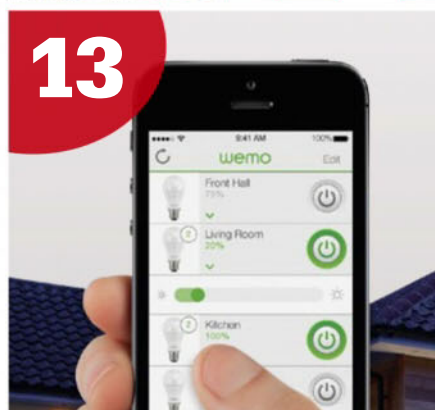
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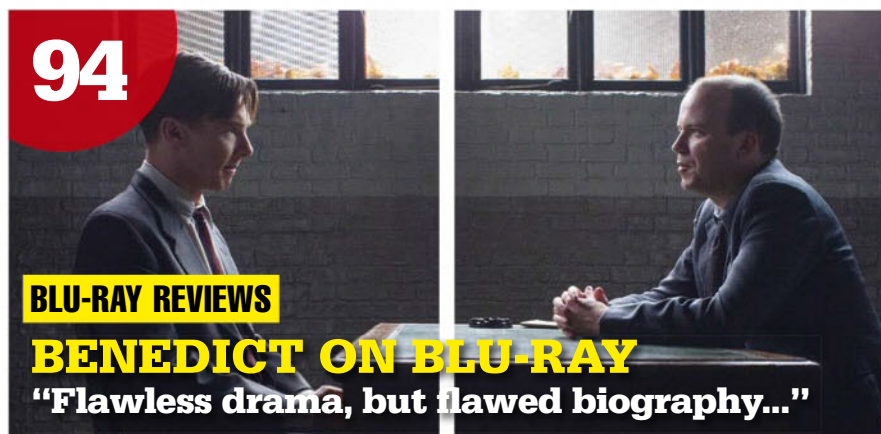
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"Flawless drama, but flawed biography..."

That Lightbulb Moment

or how I texted America to turn on my table lamp...



Greetings! At this time of year we normally catch up with the latest in smart home technology, often focusing on entries and winners of the CEDIA awards for Australia and the wider region. But with those awards not announced until the Integrate show at the end of August, we thought we'd go our own route this issue and look at some of the ways you can D-I-Y elements of a smart home.

This is a market taking off rapidly — we've all heard the catch-cri of the 'internet of things', which includes the trend for more and more household objects to be given network connections and IP addresses, allowing control from smart devices within the home, and often out of it as well.

Though rarely included in this internet of things, audio and AV have long been leaders here — there have been all manner of system control methods between components for decades before IP addressing came along, and today there's barely a source or an AV receiver or a wireless speaker to come through our doors which doesn't have its own iOS/Android app ready for download. Meanwhile the internet of things is bringing online half the kitchen, the laundry's washing machine, smoke alarms (useful to let you know when your washing machine catches fire), security, heating, cooling, and, notably, lighting.

For this issue we played with Philips' Hue lighting and Belkin's WeMo, the latter including smart switches as well as lighting. With a smart power switch you might think all manner of things could thereby be turned on and off remotely, but in fact, few modern devices will actually start up just because power is applied — most will go into standby (partly as a safety feature against being left on and forgotten during a power failure). We ended up putting a very old-style radio on our WeMo switch to wake us up in the morning, because all our new radios just went into standby. It could be more useful for turning things off, of course — kids too long on the PlayStation? Snap! — off it goes, with their position in the game lost if not corrupted by the hard shut-down as well. They'll love you.

You probably don't need us to tell you that consumer smart devices rarely work as easily as the start-up guide might have you believe. As for

extensive integration of full entertainment systems, lighting, security and more, you'll be hard-pressed to come close to that off your own bat just yet. We were, however, impressed with IFTTT (see p18) and the ability of this service to implement 'recipes' using all manner of trigger channels to activate not only smart devices in the home but also social networks, cloud documents and calendars, even using SMS (they give you a free US number) to notify you of events or, in the other direction, to trigger actions by sending a specific message. We soon had a recipe on IFTTT which allowed us to text '#one' to our US number to turn on a table lamp at home in Sydney, and it was quite a thrilling moment when this worked almost instantly. For some reason this impressed the missus rather less than we had hoped, given such an extraordinary demonstration of the power of the internet of things. And truth be told, despite having several smart systems running under app control, we reverted to using our light switches 99% of the time — basically unless we were demonstrating their abilities to friends. We would suggest that when it comes to consumer-level smarts, consider what will be genuinely useful rather than merely clever. (We also note how many smart devices are pushing users towards service subscriptions, which are a great business model for the companies but an ongoing expense for us consumers.)

We recognise, of course, that as smartness proliferates, as more connections can be made between different smart devices and sensors and new input channels, the options for control will increase literally exponentially.

Even then, it might be easier to call in the professionals. In our chat with Control4 (p24) they refer to the growing number of smart consumer devices as "islands", and describe their role as being to integrate that experience. And if you add up a home full of smart consumer devices plus a few user subscriptions, calling in the professionals may even be cost-comparable with doing it yourself. Given the hidden complexities of many so-called plug-and-play smart products, that might just be the smartest choice of all.

Cheers,

Jez Ford, Editor

www.facebook.com/SoundAndImageMagazine



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The new standard: sennheiser-momentum.com



B&W P5 WIRELESS

Bowers & Wilkins has released a wireless version of its P5 headphone, making a Bluetooth connection from your device, using the aptX codec if you use an Android device which supports it. B&W aimed to match the audio quality of the P5 Series II and notably the P5 Wireless was tuned passively, using mechanical and acoustic techniques, with no additional equalisation from the electronics when in wireless mode. Design follows the wired model but puts three-button controls on the right headcup, allowing play/pause, previous/next track and call answering (two microphones and Clear Voice Capture 2 technology). Battery life is quoted at 17 hours from a single charge, and a back-up cable allows normal use if charge runs low. RRP is \$599.95. More info: www.convoy.com.au



SONY MULTI-ROOM BOOSTS BLUETOOTH

Sony has delivered the start of its own multiroom system — the app is called SongPal Link but the system itself is simply 'Sony Multi-Room'. The ecosystem of products at launch is a good size, with three wireless speakers including one portable, plus one soundbar and one soundbase, and the SX7 micro hi-fi system. Usefully two Sony AV receivers are also compatible — the STR-DN860 and 1060 models.

The multiroom abilities include DLNA streaming at high-resolution to 24-bit/192kHz (all except the portable), and all include Bluetooth streaming with NFC pairing. The Bluetooth implementation is interesting in using Sony's own LDAC audio coding technology, which Sony claims enables Hi-Res Audio over Bluetooth, a bit-rate of 990kbps compared with maximum Bluetooth SBC rates of 328kbps. This must be achieved by stepping outside the A2DP profile of Bluetooth, and can only work from a source



ABOVE: Three wireless speaker in Sony's new Multi-Room system, the portable SRS-X77 (\$449), SRS-X88 (\$599) and SRS-X99 (\$899). BELOW: the MDR-1ABT LDAC-capable Bluetooth headphones, price \$529.

device also equipped with LDAC, which at present means only Sony's own Walkman, the \$1599 ZX2. But we've been moaning about the lack of advance in Bluetooth quality for years, so credit to Sony for jumping this hurdle. The company also has LDAC headphones in the MDR-1ABT (\$529, pictured), which could stream using LDAC from the ZX2 or from, say, the Multi-Room



soundbar. [Some numbers... While lossless compression could fit a 16/44.1 CD-quality stream (bit-rate of 1411kbps) into that 990kbps, a 24/96 file has a bit-rate higher than 4.5Mbps. Sony confirms that at 24/96 LDAC is a lossy codec using approximately 4.5 times data compression — about half of which could be lossless, the rest lossy. Via DLNA, high-res audio can pass uncompressed.] More info: www.sony.com.au

FOCAL SPHEAR IN YER EAR

Focal has produced its first in-ear 'phone, the Sphear, aiming to combine high sound quality with comfort. The Mylar driver is the smallest Focal has ever produced, though on the large side for an in-ear at 10.8mm, able to produce an "extended response in the low end" which the company admits it has "slightly increased for mobile use in noisy environments... A loudspeaker has to have a frequency response curve which is as flat as possible. This is not the same for headphones which emit sound right into the ear canal." Memory foam and silicone tips are provided, along with a carrycase and aircraft plug. RRP is \$220. www.nadist.com.au





LG'S UHD OLED

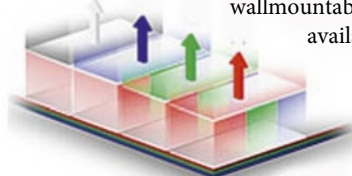
It is no secret we have been highly impressed with OLED screen technology, and we're delighted LG has now launched two 4K OLED models in Australia, the fourth market globally after South Korea, the US and UK. Initial demand in those markets so outstripped supply that Australia and other markets had been instructed to "hold off" until now. The 65-inch EG960T will retail at \$9999, with the 55-inch at \$5999 — our review of the smaller model begins on p30 of this issue.

While initial availability will be limited to a number of stores (selected Harvey Norman outlets), LG tells us the rollout will expand into more stores as the year progresses.

The secret to LG's success in OLED is the ability of LG.Display to increase its panel yields so far above competitors that early OLED rivals Samsung, Sony and Panasonic all abandoned the race, unable to compete when LG dramatically dropped the prices of the first (2K) OLED sets. At that stage, word was that LG had raised its yields from 10% (so making ten panels just to get one that worked) to around 50%. At the launch of these 4K sets LG's Grant Vandenburg told us he had seen figures indicating yields now of 80-85% on 2K panels. LG.Display is now in a position to offer its OLED panels to other manufacturers — some Chinese brands are already using them (the first was Skyworth, in 2014). While sharing the goodies in this way impacts LG's dominance of OLED, it may be considered as a requisite to grow the whole OLED sector, though this seems to be going well under its current conditions, LG showing us figures of 500% growth year-on-year for OLED (this from a low base, of course). Even without 4K OLED on the menu, LG itself has grown its Australian market share of 4K TVs from 27.2% to 30.5% (2014-2015 year to date) in a TV market where overall growth has been achieved of 3.9%.

One niggling doubt over OLED technology has been longevity of pixel performance; LG.Display itself has white papers casting doubt on longterm blue dot performance in particular. But LG.Display's four-pixel system (WRGB) is designed to compensate for this, and LG is now saying that the 4K OLED panels have been certified for 30,000 hours (10 years at eight hours a day) to 50% brightness, the same standard to which its LED models are held.

The new 4K OLED sets use LG's six-stage 4K upscaling, and the curved sets are wallmountable, with a mount available for \$149 offering 12-degrees of vertical tilt and 15 degrees horizontal. More: www.lg.com.au



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NAD'S NEW D3020

Hybrid Digital Amplifier has already received numerous accolades for its sound quality, feature set and amazing value for money. The sound experts at What Hi-Fi? Sound and Vision also recently awarded it five stars, saying the D3020 is unlike all other amps in its class.



Their comments included:

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"It's a delightful, toe-tapping performance that really communicates the essence of the song."

"It attempts to deliver the best possible performance it can, and that's what makes the NAD such a likeable amplifier."

"Whether you're looking for a budget way to play your digital music, or want to take that first plunge into hi-fi armed with just a smartphone, the D 3020 is the ideal machine to drive your tunes."

Visit www.nad.com.au for more information



LISTENING IN COLOUR: DALI

As we were listening to the soundbars from hi-fi companies this issue (see p67), news of Dali's Kubik One — a soundbar with a difference in offering three colours as standard (Black, Ice and Red) as well as six optional coloured grilles — Azur Blue, Lime Green (pictured),



Orange, Purple, Misty Grey and 'Petrol Green'. Needless to say Dali is also focusing on sound quality of the 98cm-long bar, which has two 13cm wood-fibre woofers and twin tweeters, while connectivity includes

Bluetooth with aptX, USB-micro, analogue inputs on RCA and minijack, plus two optical inputs. There is a subwoofer output available if you want more in the low-end. Those coloured grilles are interchangeable and the bar itself can be shelf or wallmounted. The RRP if the Dali Kubik One is \$1999. More info: www.dali.com.au

SONUS FABER

Italian Sonus faber has also coloured up with its Chameleon speakers — the side panels can be switched as your moods change, with a choice of white, black, metal blue, metal grey, orange or red, and more to come. It's still Italian artisanship, however, with leather-covered cabinets on all three models — the \$3699 floorstanding T, the \$1599 bookshelf T and the \$999 C centre. www.synergyaudio.com



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POLE POSITIONS AT CEDIA EMEA AWARDS

While we await the Australian CEDIA Awards results, our friends at CEDIA EMEA (Europe and beyond) have shared their winners across 19 categories, which include custom installations from the UK, Belgium, Cyprus, India, Switzerland, the UAE, including this pictured project from 3Logic in Poland, which won Best Home Cinema £40k-£100k.

Other winners included some classic UK hi-fi stalwarts, including Graham's, The Cornflake Shop, H&H Audio-Visual, Kensington Audio Visual, and a special recognition award for Peter Aylett, a former CEDIA Director, now at Archimedia Middle East.

The pictured 3Logic project was in a newbuild property where the cinema was to act as the centrepiece feature of the home, its owner requesting nothing less than flawless operation in terms of acoustics, sound and picture. Crestron control connects the cinema to the rest of the house, allowing for lighting, security and energy management and monitoring to be controlled from a dedicated user interface.

Wendy Griffiths, Chairman of CEDIA EMEA, says "We'd like to congratulate all winners who displayed high quality integration at system and design level... this year's winners demonstrated inspiring creativity, innovation and supreme excellence in home automation."

Other CEDIA EMEA winners can be viewed in its Awards yearbook at www.cediaawards.org.



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CC 71



BS 72



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FS 77



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SMART LIGHTING & SWITCHING: Philips Hue, Belkin WeMo & IFTTT
CUSTOM INSTALLATION: Control4



You have a smart device. You have a home network. So how easy is it to build a smart home of such interconnected devices?

Rainbow Connections

Smart lights, any colour you like, under app control, courtesy of the Philips Hue screw, new smart strips and Bloom lamps.

Philips is huge in lighting, obviously, but it also has a decade-long track record in getting unexpectedly clever with background lighting through its Ambilight televisions, such as the one we reviewed last issue. Ambilight TVs used first CCFL tubes and then LED lights along various rear edges of the television, back illuminating the wall to create a floating effect for the television.

This met with mixed reviews from the start, though you could always turn it off, and Philips (as a TV brand) has persisted with Ambilight, increasing the number of edges from one to four on its top models, and using

the variable colour gamut of LED to match that of the TV screen itself. Most imaginatively, Ambilight uses the video signal to pick the colours, the idea being to complement and spread the display, rather than distract from it. It's an idea we can enjoy again in Australia now that Westan is distributing Philips' televisions more widely to AV specialists.

Say hi to Hue

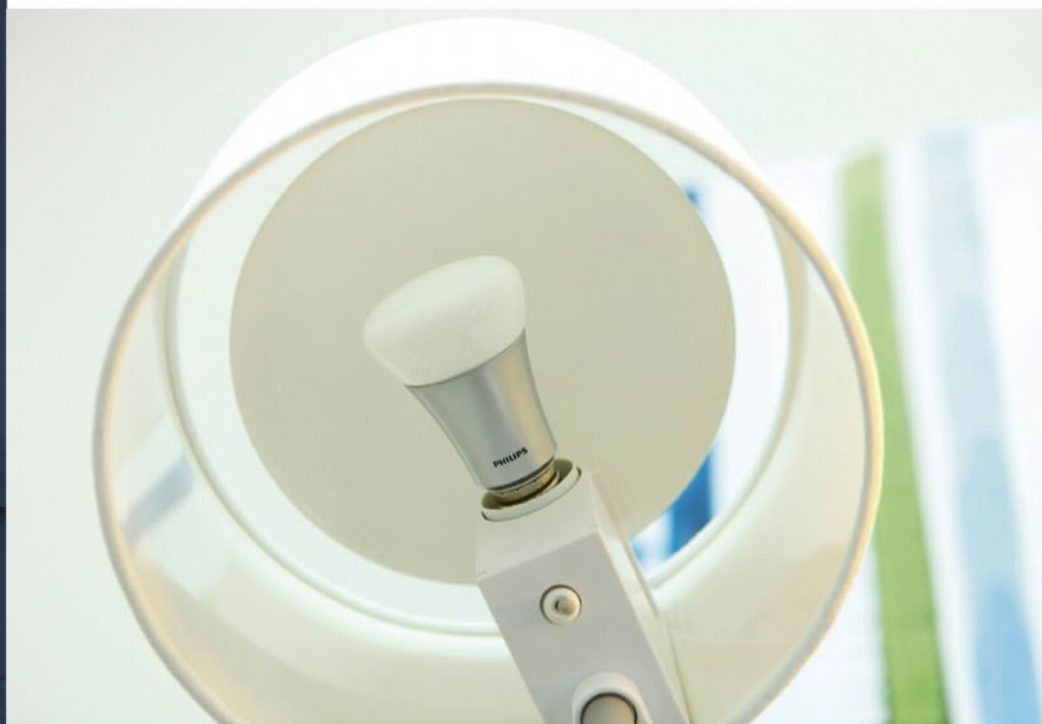
The Hue range of lighting was already widely available here. This is a consumer-installed halfway house to custom-installed lighting — you can choose from a variety of fittings and they connect to your network via a 'Bridge' (pictured right) which requires power and an

Philips Hue personal wireless lighting

Ethernet cable from your router or switcher. One Bridge can control up to 50 globes, and you can then manipulate them all from the Hue app available for iPhone, iPad and Android devices. And if you create a MyHue account online you can also control them from a computer.

Using the app or a computer you can turn them on and off, but the





true versatility comes from combining lights within 'scenes' and using their wide range of colour output to create moods.

This sounds simple enough, but a whole range of apps and options can create these moods from photographs, from online triggers, from audio reaching the mike of your smart device (e.g. music-driven lighting changes) — so as with Ambilight, you have a variety of way to drive your Hue-infused home. Philips even teamed up recently with the Syfy channel to create "a first-ever trans-media lighting experience for *Sharknado* and *Sharknado 2* in-home screening" — although this wasn't available in Australia.

Starter kit

Another thing not available in Australia is a bayonet fitting for the Hue globes. We were sent three boxes to help us understand the Hue system — first and most important being

the 'starter kit' of three globes (like the one pictured above), plus the Bridge. The globes all had Edison screw (E27) connectors; our home uses all bayonet-type, with the only screw fittings available being external flood lights. This is not atypical, we gather — a 2013 E3 report on Australian lighting found only 6% of fixed lamps with batten holders and 33% of fixed floor/standard lamps here use screw type sockets. But you'll know what's in your own home and therefore whether the Hue's screw will do for you. We did install two Hue globes in our outdoor light fittings, but of course this didn't tie them into a room mood quite as effectively as having them adjacent to the other products.

In Bloom

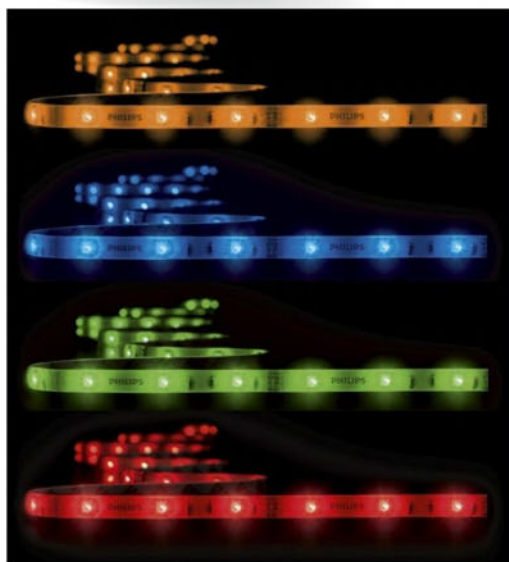
The second box supplied had a standalone lamp which Philips calls the Bloom (below), part of its 'Friends of Hue' Living Colors



TVs, lights, & medicine

Philips as a brand does not necessarily mean Philips as a company. The actual Dutch company Royal Philips has recently re-organised into two main divisions — HealthTech and Lighting Solutions, and it is under the latter that Philips Hue products fall. (The company is also global number one in electric shavers and male grooming, but even within Philips itself nobody seems sure which new division these fall under.) Philips-branded televisions are now made by TP Vision, which has a Dutch office but is owned by TPV Technology in Hong Kong. And Philips audio (formerly WOOX) is now owned by Gibson Brands, the Nashville guitar company, marketed now under the name of Gibson Innovations.





[sic] range. The Bloom is a standalone lamp 13cm in diameter which just plugs into the wall and connects wirelessly to the Bridge (it uses the same 2.5GHz Zigbee 802.15.4 bands as the rest of the Philips Hue systems). It sits low on a surface tilted upwards, and since you can see the different coloured colour segments if you look directly at it, it is clearly designed to face away from you, bouncing its combination of colours off a wall. Its mains cable therefore exits to what looks like the front, but is actually the back.

A note on positioning — don't plan on threading the Bloom's power cable through a small hole in a wall or cupboard, as it is hardwired at both ends, one to the large lamp, the other to a large power wart.

Strip and stick

Lastly, and most excitingly, we uncoiled an LED strip about two metres long with LED lights every 34mm, similar to the arrangement on the back of those Ambilight TVs. This also just plugs into a wall socket and takes its instructions from the Bridge once connected. You can't vary the colour along the strip, but the whole thing offers the same full gamut of colours delivered by the rest of the range. It has adhesive backing and, as with all LED strip lighting, should be mounted out of sight so you see the effect of its lighting, not the strip itself.

Our test units came with foreign plugs plus travel adaptors, and even the specs on the Australian Philips site says the starter kit bridge has a G-type plug (UK three-pin). But if you buy one in the shops, we're assured they'll all be properly Australian-equipped and certified.

Performance

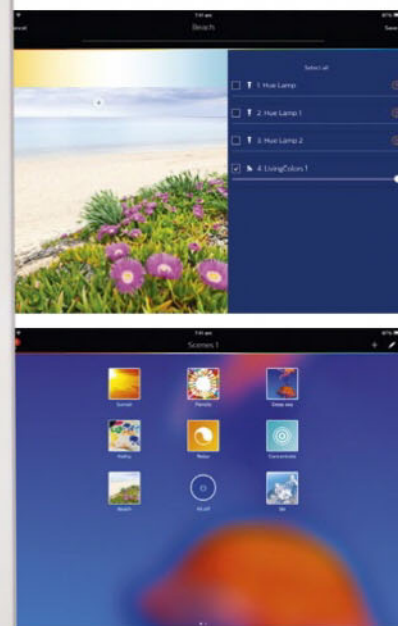
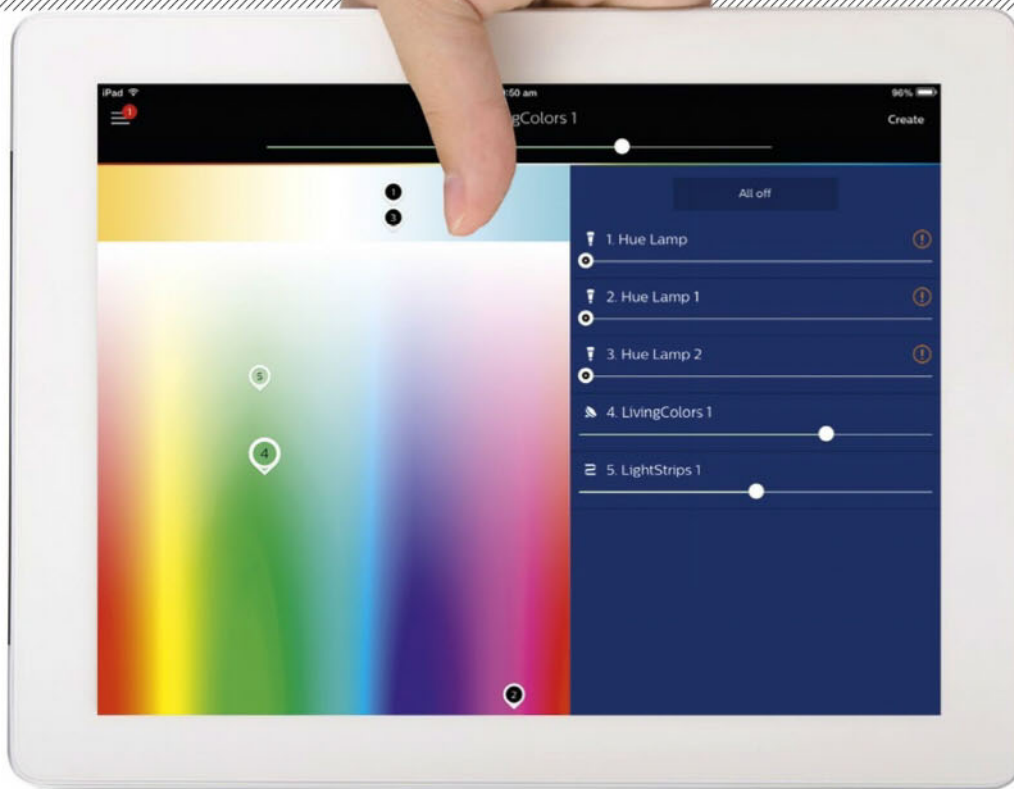
Plugged up and ready to play, there is a massive variety of apps and online sharing of scenes with which you can interact, though not all the apps are free, and the free ones can have limitations, such as controlling only two lights (see also p22). The main free Hue app is fairly powerful, and looks beautiful — you can set each lamp to a hue and intensity using a colour chart and sliders (above right), or use the 'scenes' section to use or load any photograph into the app and then pick colours from that by moving screen markers allocated to each light. When you're happy, save the scene for future use.

You can also set alarms and timers, although what they call an alarm is what we would call a timer, telling all or some lights to come on or off at a particular time. You can program in extremely slow fades (up to 60 minutes!) and repeat these schedules daily or on particular days of the week. When turning lights on, you can choose a particular preferred 'scene'. This is powerful stuff, and certainly beats leaving your standard lamp on a timer plug when you go on holidays.

Except that your smart device must be on and have the app running for these alarms to fire; they are not stored in the Bridge so cannot operate if you are away with your smart device — unless you're happy to leave a computer running at home or have an old smartphone plugged in for the purpose.

The 'timer' is a countdown — "Beach scene on in 40 minutes", "Pool scene on in 4 hours" — up to 24 hours in advance.

Immensely versatile, then, and apparently smart, but also a little dim in having little intelligence of its own, so that it relies for every instruction on your



There are many methods possible to control the colours of multiple Hue devices, but the most simple are:

smart device. Take that away, and nothing much happens.

There is part of an answer in 'myhue', the website for Hue. With an account there you can link the web to your Bridge and then control your lights from a laptop in your lounge, or from anywhere in the world — this remote control could be an on-holiday solution, except you still can't automate it, only intervene manually.

More usefully the website is loaded with different scenes to try with your lights, great fun from your laptop at home. These are again all colour schemes picked from images — some imaginative and effective (Relaxation, Sunrise, Night City), others over-imaginative and random ('Happy happy joy joy', colours from pictures of The Burning Man festival). You can store your favourites, and these soon sync across for easy access from your iOS or Android app.

Happily you can expand the system's inherent possibilities using third-party apps. 'HueParty' is one that can flash, strobe, and purports to use your smart device's microphone to sync to music that it hears. 'Muesic' can position your normal light markers on animated backgrounds, creating regular rolling changes at variable speeds, again including a 'Party mode' and a bunch of in-app purchase options.

Perhaps most powerful of all, although it requires a little learning of how to set things up, is to link your Hue via computer or smartphone to IFTTT (If This, Then That) which can create 'DO recipes' and 'IF recipes' to trigger the lights to respond to anything — a Facebook message arriving, a stock taking a dive, *Home & Away* about to start. You could have your lights flash

blue and white whenever West Brom scores — whatever you like. We've written up this powerful service separately overleaf.

Conclusions

The whole Hue ecosystem is growing, with new linkages to Ambilight TVs, IFTTT, etc. But the basic offering starts with a starter pack of the three Hue lamps and a Bridge, including a LAN cable to connect the Hue bridge to your router — that's \$249. Additional individual globes are \$69, the Bloom light comes in at \$100, and the LED strip at \$125.

That isn't exactly impulse-purchase pricing for most of us, and if you were looking at building a sizeable system, it might well be worth talking to a reputable custom installer about costing up a system of similar abilities fully installed by a qualified electrician. This could be similarly controlled from a smart device using app interfaces from the likes of RTI, Control4 or Clipsal/Push.

Even with a lack of the requisite Edison-screw light fittings in our home, we did enjoy playing around with colour combinations for different moods and environments, while the missus sat there sighing. If only the Bridge was independently smart and programmable, ongoing automation might be easier.

And there's one more thing they might usefully add.

"Where's the 'off' switch?" asked the missus as we headed to bed.

"Oh," I said, "I've put the Hue app onto your phone — just turn it on, open the Hue app, go to 'Lights' and press 'All off.'"

"Too hard!" she laughed. But of course I could turn them all off from the bedroom iPad anyway. *Jez Ford*

1 THE COLOUR CHART (main image above left) — move markers for each of your Hue devices across the colour palette and control the intensity with the sliders on the right.

2 PHOTOS (top right) — sample colours from supplied images or your own.

3 SCENES (above middle) — 'scenes' are another way of delivering images to supply one or a mixture of colours from a pre-selected palette.

4 OTHER APPS (below) — many apps are available, some free, some paid for.



SPECS

Philips Hue

from \$249

Hue light bulbs: 600 lumen @ 4000K (40W equivalent) — warm white to cool white plus colours — \$69 each, starter pack (3) \$249.

Quoted lamp life: 15,000 hours

Max. lamps for one Bridge: 50

Living Colors Bloom: 120 lumen, 8W, \$100

Lightstrip: 120 lumen, 12W, length two metres (can be cut to size), \$125

Contact: Philips Hue

Web: www.meethue.com

If This, Then That

Rules, rules — it's all about rules...

Both systems we review here, Philips Hue and Belkin's WeMo, can be connected to the internet and made available as a 'channel' for the online service IFTTT. IFTTT stands for 'If This, Then That' — a standard way of describing rule-based logic: if that light switch is pressed, then turn on the lamp. Things that were once simple electrical connections are now controlled by logic instructions under the command of some device that has been programmed with these rules, whether that be your smartphone, a unit within the home itself or, as with IFTTT's service, a remote online server [ifttt.com, or the IF app].

It's out there

The IFTTT service allows its users to access information from a great many 'channels' to trigger events according to the rules you specify. IFTTT calls these 'recipes' — and you can make your own, or choose from the endless recipes other users have shared.

IFTTT's power comes from two things — its ability to operate without requiring any user interaction or smart device to be present (which, as we've seen, is a limit on the intelligence of some of these isolated systems), and secondly the sheer number of different channels that can be combined. As well the likes of Philips Hue, Belkin WeMo and other smart devices, the channels include weather, news, many social networks (Twitter, Facebook, Instagram), business networks, and even such things as the iOS geolocator built into your iPhone.

So while the WeMo app itself can handle checking your location to implement accurate sunset and sunrise triggers, IFTTT can use the Weather channel to flick a switch when your local weather station registers rain. It can turn on a light when you get a Facebook message. Indeed if we listed every pre-built 'recipe' available on IFTTT, this would be a very large magazine indeed.

Consider two scenarios. With the IFTTT iPhone app, IFTTT can track your location and turn on your WeMo lights just before you get home. Or if you set up a free IFTTT SMS number, you can receive texts when certain things happen — when a power socket is in use for more than a specified

time (kids watching TV, say). Or you can send specified #hashtags to your IFTTT phone number to trigger anything you like — turning the TV off, or turning a specific light on.

But how quick are the triggers? We noticed in the WeMo literature that Belkin mentions a 15-minute polling time for some IFTTT events. You can't be waiting that long for your lights to come on.

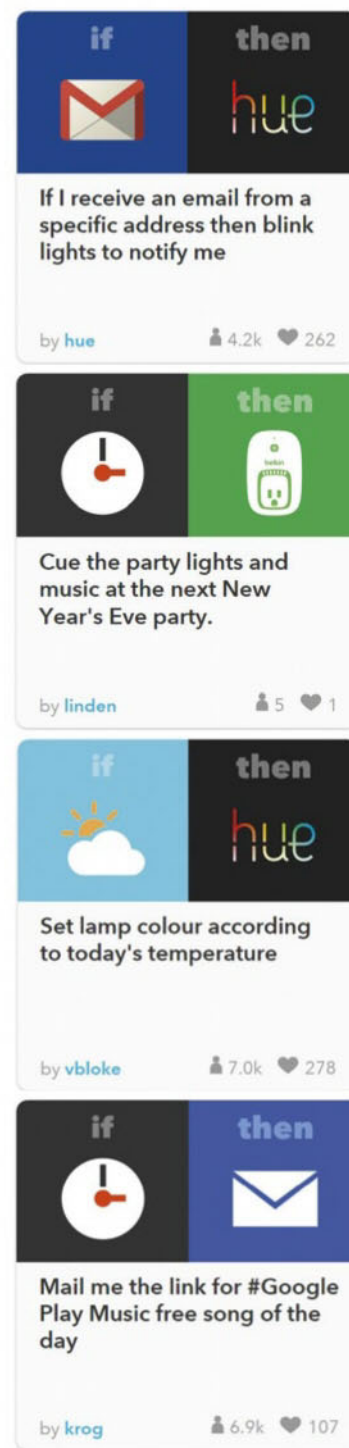
No problems. When we set up a rule that texting #one should turn on our WeMo Light One, it was actioned in a couple of seconds. Timer events happen on the second. It's more the social media apps that can take a while to come through. (We should note that with SMSing, you should check your phone tariff carefully, since you're given a US number — it may cost nothing to receive texts, but you may have to pay to send them, depending on your plan.)

Almost a side-effect of the channel breadth on IFTTT is that it provides integration between different isolated systems. An input from a Belkin WeMo device can be used to trigger a Philips Hue light, should you so desire. It can bring together elements from different systems that would otherwise simply not work together.

Beyond the smart home

The effect for people encountering IFTTT for the first time is that they're likely to lose interest in their smart lights and switches because, of course, IFTTT can output to endless other places too. Connect iOS Location to your Google calendar to log the hours you spend at work, perhaps, or automatically save your posted Instagram images to your Dropbox.

And the successful constructing of new rules does deliver quite the joy of achievement when you try them out, like building a Meccano set, or completing flat-pack furniture without having any bits left over. Though whether you build anything that proves useful in the longterm, only time will tell...



RECIPE BOOK: IFTTT uses notifications from websites, social media, physical devices, texts and dozens of other 'channels' to trigger an event on the same or an entirely different channel. There are thousands of these 'recipes' already made available by users, but it's equally easy to make your own. For example, we can now turn our lights on by texting #one to a US phone number. How handy is that!



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DIY Smarts

Belkin WeMo
home automation

With switches as well as lights, Belkin's WeMo offers a wider range of home automation possibilities.

Belkin is cases and bags, Belkin is cables and covers, Belkin is surge protection and lifetime connected equipment warranties. Belkin is Linksys, which it acquired in 2013 from Cisco. And Belkin is also WeMo — a family of connected products for the home.

Although WeMo has become Belkin's brand for connected home devices, the company was offering simple automation long before this. There had been Belkin switches which could be remotely controlled, and power blocks where some sockets were slaves activated by a master socket — so turning on the TV also turns on your AV receiver, for example. In these ways Belkin has long been a pioneer in consumer smart-home devices.

The WeMo products, as with Philips Hue,

are consumer devices to be purchased, taken home and installed by the home owner. In Australia the range currently includes smart light bulbs, smart switches, and a pair of Wi-Fi cameras.

Setting up the bulbs

We started, appropriately, with the \$179 LED Lighting Starter Set, which has the WeMo Link and two warm white bulbs (800 lumens, so 60W equivalent but using only 10W of power, and with a quoted life above 25,000 hours). You plug in the Link to any socket, preferably centrally located, as it will be communicating with both your router and your bulbs — it can control up to 50 bulbs, which are also sold separately for \$59.95. We were delighted to find that Belkin offers both screw and bayonet bulbs.

You put your bulbs in their sockets, turn them on, then download the WeMo app and start setting up your devices. The procedure for getting them on the network seems simple enough — anyone using smart devices or wireless speakers will be familiar with the method. The Link broadcasts its own Wi-Fi hotspot, you switch your smart device to that Wi-Fi connection, and the WeMo app then sees the Link.

But few things in life are as simple as their quick start guides would have you believe. We could see no Wi-Fi network from the WeMo Link, which was flashing orange. A small 'FAQ' link on the final page of the app's set-up instructions led us to a page showing that orange flashing means 'connection no good', presumably meaning to the bulbs (which were six and 12 feet away, and illuminated), with no help on how you might fix this. A search soon led to a forum post describing how to reset the Link— unplug it,

hold the small reset button and keep holding it for 15 seconds after you plug it back in.

It still flashed orange. Another forum suggested doing the reset then again pressing the reset





Adding a NetCam

As a remote HD camera with excellent night vision, the NetCam HD Wi-Fi Camera with Night Vision scored well, delivering 720p video smoothly across our home network to our iPad, where we could view it using the Netcam app. When you're watching its output, you can record video direct to your device. On an iPad these end up stored in your 'Photo' app, not in your Video app or the app's own 'Clips' folder.

It has a built-in motion detector, which throws up a 'Motion detected' indicator in the WeMo app. And you can use this motion as an input to make 'Rules' under your WeMo app. The results can be quite thrilling. At around 2.30pm on our first day of testing, WeMo Light One suddenly turned on, then turned off. Was it sunset already? Had we texted America by mistake? No — we had earlier set up a rule (screenshot right) that if the HD NetCam (which was pointed at our entry steps) detected motion, it should trigger a flash of Light One. Sure enough, someone was coming up the steps. Success! Ah the thrill of achievement.

Of course this became annoying quite quickly, after it turned out that a lot of wind would move foliage sufficiently to flash the lights, and by late afternoon the lamp was going off every 15 seconds.

But assuming you have this working reliably, what does it achieve? Do you log on to see what caused the motion? This involves opening the WeMo app, selecting the camera and having it log on — we timed that process at 25 seconds, quite enough time for a passing possum to have passed by, if not a burglar or the whole court of King Caractus. The most useful application for a NetCam would be to record video automatically when motion is detected. But onto what? In the absence of your smart device, the system itself has no memory.

So you're encouraged to have a subscription with iSecurity+ (<http://www.isecurityplus.com>). A free subscription will send you notifications if motion is detected (warning, this could be a lot of texts), while the paid plans are US\$5.99 to grab stills when motion is detected, or US\$9.99 to record motion-triggered video (it records to Cloud storage). Those prices are per camera per month, so for a multicamera set-up you could quickly outpace your Foxtel bill. Subscription models are seen as a key business model in the internet of everything, but to be honest, we don't like them at all. Recording locally to an SD card slot or a USB socket for a hard drive would be more self-contained — provided your burglar doesn't pinch it, of course.

for five seconds. Still flashing orange. We gave up, and cooked some Campbell's pumpkin ravioli for lunch. About halfway through the warming process, the two WeMo bulbs suddenly flashed and dimmed. The Link was now flashing green and orange alternately. Excitedly we checked and a WeMo Wi-Fi hotspot was now available; we connected. Phew. Nearly there.

But... when the Link had been found and linked, it asked us to select our home Wi-Fi network from a list of, er, none. There are half a dozen networks floating through our lounge; none was shown. We tried forcing an SSID connection, with no luck. Another WeMo FAQ suggested moving the plug closer to the router. A forum suggested just unplugging it and trying again. Sigh. We did that, and happy joy, it found the Wi-Fi, and the bulbs. And then announced a firmware update which might take 10 minutes. After that, all good. But we realised we'd burned the ravioli.

Them's the rules

So, set-up dramas over, the WeMo app's 'Devices' screen now allowed us to control our two light bulbs (on/off and brightness) and also the WeMo switch that we added to the group (on/off) from its touchscreen.

We could also see motion warnings from our NetCam and then log on (you flip to a separate NetCam

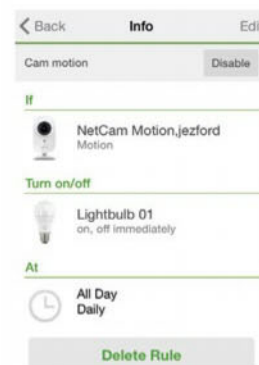


app) to see what was going on down at the fenceline. This general control screen for WeMo is shown here on the left. Aside from these manual controls, you can set up basic rules — nothing too complex with the existing Belkin range, but extending to sunset and sunrise rules tailored for your location, auto-off timers and 'away mode' to have all or some of your lights and switches come on and off at specified times, perhaps on at sunset, off at 11pm — good for that lived in look while on holiday, especially if varied by the available remote access options. Our rule to flash Light One whenever the NetCam detected motion (see NetCam panel) is shown in the screenshot below — a simple 'If/Then' recipe.

We note that Belkin also has a Wi-Fi controlled light switch listed on its Australian website, but the accompa-

nying video (designed for the US market) encourages confident users to wire it in themselves. That's a screaming no-no here in Australia, of course — strictly sparkies only, since it involves bare wiring.

This rule-building will become more powerful with the release of Belkin's range of sensors in Australia. These are already available in



We set up a system of one WeMo switch (\$69.95), the starter set of the Link and two bulbs (\$179.95), and the NetCam HD Wi-Fi Camera with Night Vision (see panel, \$179.95).





Third-party apps...

In addition to the IFTTT service (see p18), there are various apps available that not only offer different ways to control either Philips Hue or Belkin WeMo devices (especially lighting), but which can actually tie together the white bulbs of WeMo and the coloured bulbs of Hue under a single control app. Most of these cost money, or have free versions which are limited to operating only a couple of bulbs — not enough to create a complete 'scene' but enough to understand how the app works. One of the most successful for iOS is Lightbow (above), which can control WeMo, Hue and LIFX-brand bulbs (see below), providing single-tap launching of custom multi-step animation loops, static colours or on/off and brightness commands for any groups of lights. Various presets are available (and others can be bought via in-app purchase). These programs can operate even when your Apple device is asleep. <http://lightbow.net/>

And there's LiFX...

We should not depart the world of Wi-Fi lighting without mentioning an Australian option — LIFX (below). It began as a Kickstarter project by Australian Phil Bosua in 2012, and such was its success that he relocated to San Francisco. The range includes white and coloured designs, with an LED downlight due in late 2015 or 2016; the 'Original' is stocked in Harvey Norman in screw and bayonet versions for \$97 per bulb. No 'starter kit' is required.



America, and include door and window sensors, an indoor motion sensor, a water pressure sensor, and the clever WeMo Maker, which can trigger and provide feedback from pretty much any low-voltage device. We can imagine things getting a whole lot more versatile then. The US also has a range of WeMo compatible homeware from third party — slow cookers and the like that you can trigger on timer or app through the WeMo system. Obviously the combinations and permutations available to Australians without all these US-only products are much reduced. Happily the Insight Switch is due for release here imminently (this adds smart electricity use tracking to the standard switch), and we're told the sensors should be coming later in the year.

Meanwhile, we have our channel through IFTTT to play with (see p18). This involves allowing the IFTTT service access to your devices by linking it to your WeMo 'channel', and indirect as it seems, IFTTT can be a useful way to connect between your WeMo devices. One IFTTT recipe uses the switch on a WeMo Switch to turn off the lights in another room — via outward and inward triggers to the IFTTT cloud. A long trip for a simple switch command, yet effective nonetheless! More broadly, as described in our separate article, IFTTT can connect between endless external channels like Facebook, weather, stocks, sports, news — and the 'rules' or 'recipes' you set up are limited only by your imagination and those of others who have gone before you.

Mind you we had more connection fun while linking our WeMos to IFTTT — it took quite a few attempts. You set up or log in to an account on the IFTTT website or app, and link to your WeMos by entering a PIN provided by the WeMo app. For us the first four of these were rejected as 'invalid WeMo codes', but we persisted using the trusty pumpkin ravioli technique (see 'Setting up the Bulbs' above) and eventually the 'channel' was opened. Partly. It connected our Belkin switch, but not

^
WeMo sensors — window and door sensors, proximity tags, indoor motion, water pressure — the ability to use these as triggers would exponentially increase the options for rule building within the WeMo system. But they're not yet available in Australia.

the lighting. After some investigation, a Belkin support document pointed us to the 'Manage my WeMo Channels' button on the PIN page of the settings menu in the WeMo app, and this allows you to link anything you have. And you must have upgraded to the latest firmware for IFTTT to work at all.

All this is again a lesson that nothing is as easy as advertised in the world of connected smart devices. If you're planning to do it all yourself, at least cost up what you'll be spending and take a look at the professionally installed alternatives available, remembering that in Australia you may need a sparkie anyway if you're getting into light switches that physically connect to your electricity.

Conclusions

We thoroughly enjoyed getting acquainted with the WeMo range. Learning how to implement rules (especially integrating with IFTTT) was the secret to making things useful rather than just a gimmick. Still, we must confess that as a review system, after a couple of weekends of WeMo play, we did largely revert to using our conventional light switches. *Jez Ford*

SPECS

Belkin WeMo	from \$179.95
WeMo LED Lighting Starter Set: 800 lumens @ 3000K (60W equivalent), bayonet or screw, plus Link controller — \$179.95	
WeMo switch: \$69.95	
NetCam HD Wi-Fi Camera with Night Vision: 720p streaming — \$179.95	
Contact: Belkin WeMo	
Telephone: 02 4350 4600	
Website: www.belkin.com/au	

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Getting off the Island

+

“Smart devices are cool, but they typically operate in individual islands themselves. What Control4 is about is integrating that experience.”



You may note from both of our preceding experiences with consumer-installed smart lighting that each had its moments, but each was also limited, partly by the product range, partly by its implementation, and partly by the need for the user to get into the programming in order to achieve anything beyond, well, having a bit of fun. Crucially they don't allow much interaction with other systems and brands in the home — they are not particularly integrated solutions.

Also, the prices are such that if you were planning to do a significant part of your home with these smart products, you might well spend sums that could get you a properly-installed smart solution, either starting small and growing

the system later, or bringing together the whole gamut of connected and smart devices and systems that the modern home can enjoy.

Control4 has always pitched itself as a relatively inexpensive path into smart home technology, so when two key personnel visited Sydney recently, we took the chance to ask what their platform can do above consumer-level products, and how cheaply you can start out. As they emphasise, it's not about the products, it's about the experience, but we did get into some of the technology, knowing that our readers like to know how things work, in addition to enjoying the results.

SOUND+IMAGE: *So let's start with the basic pitch for Control4 — our readers love their home entertainment, they're smart, they're quality-orientated, they're early adopters. What can Control4 do for them?*

SUSAN CHACEN: If you think about all the smart devices in the home, whether it's in the entertainment world or thermostats or security systems — all those devices are really great and they enhance your experience. But what we do is enable you to make them work all together, and by doing that it really transforms the experience into something altogether different that's truly the smart-home experience. When you live in an automated integrated world where all the devices in the home work together, when you push a light switch so that the music turns on, the shades dim automatically and it sets an entirely different mood, that really transforms your experience in the home. And that's what Control4 is all about.

S+I: *How do you explain Control4's advantages compared to a consumer-level solution like Belkin's WeMo or Philips Hue?*

ROBERT KIDD: So there's a broad proliferation of what we call smart devices. Smart devices are cool, but they typically operate in individual islands themselves. An island will create a novelty effect, kind of a short-term draw, but it doesn't help provide a transformative experience.

So what Control4 is about is integrating that experience. We think about it in terms of how music was

created — musical instruments were really important, but it wasn't until Mozart came that we as consumers learned how to appreciate music. So we are about enabling our dealer community to become the conductors, to figure out exactly what kind of lifestyle requirement is important for this particular homeowner, what blend of security and ambience and convenience and energy savings and entertainment — what the right blend is for that family — and then to deliver that.

S+I: *So it sounds like you're pitching an experience rather than a set of products?*

ROBERT: Absolutely.

SUSAN: And the solutions through which you experience Control4 varies by consumer — is it in the entertainment world, in video distribution, or streaming music throughout the home? Is it smart lighting, is it energy conservation, is it security? Or is it a combination of all of that? We have a broad range of solutions, but the ability to integrate anything in the home and make it work together is the magic of Control4.

S+I: *How small can you start?*

ROBERT: A single room.

SUSAN: Think of what you spend on a souped-up iPad, that gets you started. From there you can scale all the way up, or you could just start there, forget about it for a few years and then come back and add to the system.

S+I: *Forgive us getting back to products, but the heart of the Control4 system is the Controller, as we understand it. You have sources and a Controller, and a one-room solution might use the smaller HC-250 Controller. So what elements do you need beyond that?*

ROBERT: The Controller includes both the hardware gateways and platforms and channels, as well as the software underneath, which allows you to provide the integration points between what we talked about with lighting or security or audio or video and the various distribution points. But we have a lot of different products



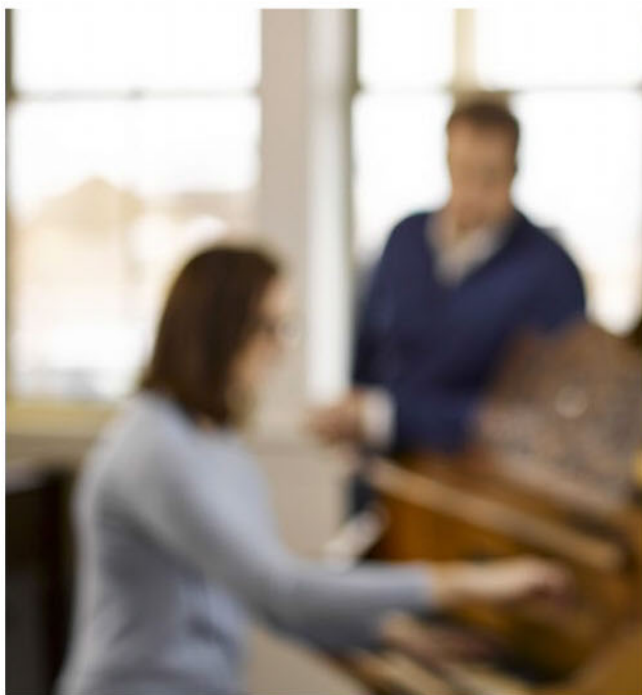
Robert T. Kidd
Control4
Managing
Director,
Asia Pacific



Susan K. Chacen
Control4 Senior
Vice President,
Marketing



Adam Merlino
Advance Audio
Australia –
Brand Manager
(Technology &
Automation)



“I just want to mess with my husband – I’ll turn the lights on and off from Sydney...”

to facilitate distribution, lighting control, wireless or wired lighting, so that’s all underneath the covers if you will, it’s really a question of what is the right blend for each home owner. Do they want to focus on an entertainment solution — is it one room or is it multiple rooms? Do they want to focus on a security experience — is that inside or outside the house, is that a single room or multiple rooms. Or lighting...? And then that’s where we focus.

S+I: And the HC-250 Controller, what are the ins and outs available on that?

ADAM MERLINO: It has HDMI out, which is also an audio zone; it has Ethernet/IP control, it has IR control, RS232C control, triggers and relay, and an audio input as well, if you want to digitise anything.

SUSAN: In addition to the hardware design and capability, every HC-250 comes with TuneIn internet radio, so that’s thousands of podcasts and streaming radio stations. And there’s

intercom software built-in so if you want to add that functionality there’s no need to add more software or hardware.

ADAM: And it’ll talk to an existing C-Bus system if you have one.

SUSAN: And then the Control4 app comes automatically. So if you have a remote control you can use that, but if you have the HC-250 and your smart-phone or tablet, you can control anything in the house.

S+I: You still offer dedicated control touch-screens, when many platform providers stopped bothering after the iPad came along...

SUSAN: We think of touchscreens as command centres for the smart home. So I don’t know about you, but you might have a tablet in the family room and your kids pick it up and walk out of the room and you’re like ‘where did that go?’ So with most of our home owners, definitely in the kitchen, in the family room, there’s a touchscreen. It’s a lot easier to manage

and edit lighting scenes and interact with it in that capacity.

ROBERT: A smart device is certainly powerful remotely. So if I’m in Brisbane and I want to see what’s happening in my home from a security perspective, or I want to make sure the power’s off...

SUSAN: I just want to mess with my husband — I’ll turn the lights on and off from Sydney...

S+I: So this is where the 4Sight subscription comes in — can you explain that?

SUSAN: Yes, so basically we have a Control4 app, an interface that works within the home, while 4Sight gives you really secure access to your home from anywhere you have 3G or 4G access. It’s just like taking your home with you wherever you are.

S+I: So then if someone gets hold of my phone, can they do stuff?

SUSAN: There’s plenty of security. The way our engineers talk about it is that the security implementation within 4Sight is as strong as for



◀ Control4’s HC-250 Controller may be an unprepossessing black box, but its abilities are manifold, and it forms the heart of an entry-level Control4 system. For larger multi-room installations, your installers may recommend the larger HC-800 — or more likely they won’t talk about the actual products at all...

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One-device challenge...

During our discussions about the HC-250

Controller, Robert Kidd pointed us to an article on Control4's website by Dennis Burger, Editor in Chief of HDLiving.com. It details all the things you can achieve with an HC-250 Controller.

Top of the list is being able to use a single remote to control all your video gear or more, with the HC-250 sitting on the same home network as the rest of your internet-connected devices, remaining in constant communication and sending two-way control commands via Wi-Fi or Ethernet, including the creation of 'scenes' such as 'Start movie' where multiple devices are activated.

Next is music, with the HC-250 offering a stereo analogue audio output in addition to its HDMI connection. There's built-in free TuneIn internet radio and podcasts, while the addition of a wireless bridge will allow Bluetooth, AirPlay and DLNA streaming.

Then there's lighting — the HC-250 can control a number of third-party lighting solutions and automated blind systems too.

'Comfort' is another area of Control4's interface, working with the capabilities of today's smart thermostats (such as Nest) and able to monitor temperatures so automatic changes can be made. The HC-250 can also connect to and communicate with some pool and spa systems, gas fireplaces, fountains, overhead fans — assuming you use brands that are smart-controllable and compatible with Control4. The same is true of some security systems. The company has a full list of 'partner brands' on its website.

The full PDF can be downloaded from www.avhub.com.au/c4onedevice



a financial services company. Are you worried about access to your banking because you have a bank app?

S+I: And how often do people think they can do everything from their app?

ROBERT: It's a common misconception. We can say 'OK that's fine, you can use your tablet or smartphone for everything' — but then they typically come back and say 'Well it's not quite as convenient, can you put something here that will let me control these capabilities on a seamless basis?'

ADAM: If you take the example of trying to turn on a light on an iPad, you need to unlock the iPad, enter your PIN or your fingerprint, launch the app, make sure Wi-Fi or 3G is running, find the room, turn the light on. The light should be a button press.

S+I: And you can also control things on an interface for your TV screens. Is that through a separate HDMI input or does it come in on a modulated channel or what?

ADAM: It's an HDMI connection. The controller has HDMI output, which goes into the TV or receiver, and that gives you your digital audio for TuneIn and streaming and all that, and also gives you the control interface. So if you have a centralised controller and video distribution you can throw up that navigation anywhere.

S+I: And there's a wireless music bridge — this is an input device to the Controller. Tell us about that.

ROBERT: This allows you to add your own smartphone music into the home experience, via AirPlay or Bluetooth, or using DNLA.

“Receivers, projectors, every Sony Bravia TV, every Panasonic 4K TV, Samsung, Marantz — you name it, we're literally in thousands of products...”

S+I: What does that allow, format-wise?

ADAM: With AirPlay you can play whatever your iTunes collection is — it's compressed audio, it's a background audio system. But the Controllers themselves have an audio streamer onboard, so if you have a Controller on the network there is an audio streaming device for high-res — you can play FLAC files... I don't think I've tried 24-192, but it does 96kHz. And the HC-800 has a digital output as well, so you could go into a D-to-A, rather than use the onboard DAC.

ROBERT: You can also store music locally in the house, and then you can play from there, by network share, NAS or iTunes...

S+I: And in terms of setting up a Control4 system, that's always a custom job? You don't let people buy the bits and have a go...

ROBERT: No, that's why we are a dealer direct model, why dealers are super-important. Back to my analogy — they are the conductors, and it's really important they understand the lifestyle goals, so that they can deliver for Phil and George and Phyllis what they require.

SUSAN: You know it's funny too, we just had a meeting with Nest, and they went direct to retail. But all their customers were calling dealers saying 'I need help installing these things' — DIY sounds fantastic until you're doing it! And then you're 'Adam, help me!'

S+I: And 'Composer' is the tool for setting all that up?

ROBERT: Yes, though we actually have two — we have Composer Pro, which is hard-core programming, which happens at the dealer certification program...

ADAM: It's a three-day training program.

ROBERT: And then we have Composer Express, which is a smartphone-based application which will assist a dealer building a basic system on premise. And that helps the dealers become much more efficient with their own labour — they can keep their most expensive intelligent people back in the dealer's location then remotely configure and program.

S+I: And is that programming then locked, or is there user variability available? Can I mess with timers and stuff?

ROBERT: It is very important for us to do this long term, to empower the consumer to have the adaptability. We've started to introduce that in small ways, like a wake-up scene and the time for your wake-up call. Lighting scenes



you can make your own. And we've just introduced HVAC [air conditioning] scenes, so on a Monday, Tuesday and Wednesday, or on leave versus holiday, you can figure out your own HVAC scenes.

S+I: Can you tie sensors into that for temperatures and stuff?

ROBERT: Yes, humidity, fan, the whole thing.

S+I: A couple of years back you were hoping that Control4 technology would soon be embedded by manufacturers in televisions and so on — did anything come of that?

ROBERT: In a way it did.

SUSAN: We shifted from integrating the core, the crown jewels of our technology, into product into instead developing what we call

SDDP [Simple Device Discovery Protocol], which is free, easy to licence and integrates into TVs, receivers, projectors. Every Sony Bravia TV, every Panasonic 4K TV, Samsung, Marantz — you name it, we're literally in thousands of products.

ADAM: It basically broadcasts itself, so you launch your Composer and you've got your HC-800 or 250 Controller, it says 'Hey, I'm a Lilin IP camera, I'm here, this is what I am, double-click and I'll install, and it becomes part of the project.

SUSAN: And in the mobile app it just auto discovers and makes it easy to integrate all the smart devices in a home into your system.

S+I: So if someone buys a new TV and they've already got their Control4 system running, how much of a process is it to incorporate that?

ADAM: If it's an SDDP product, a dealer could just remotely log in through the customer's request, the TV will then broadcast itself and they can add it to the project.

ROBERT: 15 to 20 minutes.

S+I: Is there a site consumers can easily see what products are SDDP-enabled?

SUSAN: Yes there is, we have a partner section on the Control4 website [<http://www.control4.com/for/partners>]. And our new website is making a bigger play of the interoperability side of things, most definitely.

Interview: Jez Ford

THE 2.7 EXPERIENCE

Control4 brings out new experiences tied around software and hardware together, and the latest (issued March 2015) is '2.7'. It introduced a new line of touch screens (right) and introduced the integration of Australian company Leaf and its video distribution product line. "The full family of true 4K video distribution is not 'faux-K', it's the true 4K with HDCP 2.2 compliance," says Robert Kidd.



LG Electronics 55EG960T

OLED UHD TV



Simply The Best

Let's not beat about the bush — LG's combination of 4K resolution and OLED screen technology is as good as it gets.

SUMMARY

LG Electronics 55EG960T

OLED UHD TV

Price: \$5999

- + The best picture on the market
- + Gorgeous styling
- + Powerful and effective smart features

- 3D crosstalk at top and bottom of screen

In preparing for writing this review I had a quick search through my reviews folders to see what other OLED TVs we'd reviewed in the past. And I was startled to find one as far back as 2009, a tiny little 11-inch Sony that cost \$6999. Since then both Sony and Samsung have dropped their flirtations with the technology, leaving the field to LG.

LG and LG.Display, meanwhile, have continued to develop OLED technology, so now we present here, at a thousand dollars less than that tiny Sony TV, the new 55-inch LG 55EG960T Ultra High Definition (aka 4K) OLED TV.

Equipment

Of course, this TV and its 65-inch sibling are the culmination of two different strands of consumer TV technology

being brought together. While OLED has been around for a couple of years, it has thus far been limited (in Australia, anyway) to full-HD resolution. The other tech is Ultra High Definition, and that's what this TV also enjoys.

So, a brief recap on the tech. UHD means 3840 by 2160 pixels, four times the number of full-HD. UHD content is sparse at the moment, but if you have a very fast internet connection and a premium Netflix subscription, you can get some from there. There are some YouTube clips. Or you can make your own content on one of the increasing number of UHD-capable video devices (the TV supports the higher efficiency H.265 codec in addition to the older H.264 for UHD content). And then there's the promise of UHD Blu-ray, which is 'said' to be coming this year.



WebOS

LG's smart interface, WebOS, was already nicely usable in its previous version, and with the quad-core grunt of the processor here, is now a positive pleasure. Menus snapped up instantly. Almost never was the rotating marbles 'waiting' icon hanging around when I selected something.

Access to the smart functions was likewise instantaneous. The WebOS row of icons can be edited by dragging and dropping them. And usability was enhanced by having much of the direct functionality of an old-fashioned remote control now built into the Magic Remote.

Of course, not everything is well integrated. FreeviewPlus, for example, does not benefit from the pointer control, although it looks to be screaming out for it. That said, with the powerful processor built into the TV, FreeviewPlus was highly usable, popping up its previous-days' EPG quickly. The TV itself started up quickly, getting a picture up on screen after about five or six seconds from standby.

The standard broadcast EPG is not retained when the TV is switched off, so when you switch the TV on you only have EPG entries for the TV station currently tuned in. To see the rest you have to select the other four networks in turn and allow a few seconds for each to load up.

The Smart features include the ABC iView and SBS On Demand apps, plus specific apps for Netflix, Bigpond Movies, Youtube, Quickflix and of course there's a web browser (you can use a Bluetooth or USB keyboard and mouse to make this really effective). There are lots more things available, mostly for free, in the LG Content store, including games, more streaming video apps, news resources and so on. The Facebook and Twitter integration that was the rage a couple of years ago is gone. There don't even appear to be apps for social media any more, probably in sensible recognition that people use their phones for such things these days.

The TV supports HDCP 2.2 and the new deeper colour standards, so compatibility is almost certain.

As for OLED, this seems like the final, perfected display technology. Each pixel produces its own light, so there's no need for a back light, permitting extremely thin panels (just 6.7mm for the top portion of the screen in this case). And unlike plasma, the brightness of the pixels can be ramped smoothly all the way down to completely off. So perfect blacks are, well, just the norm for this technology.

In addition, switching time is astonishingly fast. Not the few milliseconds of LCD panels, but 0.002 milliseconds. There can be no smearing of the image unless the electronics are intentionally engineered to do that.

The downside of OLED has been fears about the pixels themselves, blue in particular, being relatively inefficient and perhaps shorter lived than the other colours. LG addresses that by using four colours: the regular three plus white. It can enhance the blue, allowing the use of lower power settings for the blue pixels. LG says that this third generation of OLED panel is good for 30,000 hours, which is eight hours a day for ten years.

By then I reckon we'll have OLED wallpaper.

In the meantime, the 138.8cm screen is curved. We remain skeptical about the benefits of such a thing, but I must admit that this curved TV looks very pretty, hovering slightly above the bench on a stand in which the vertical component is a slab of glass. The extremely thin screen and the smooth white finish of the rear add to its beauty.

This TV has three HDMI inputs, as well as some legacy analogue connections, Ethernet, dual band Wi-Fi, three USB sockets. And it comes with the new version of LG's Magic Remote Voice. This re-instates quite a few traditional keys to this RF device, making it much more efficient than the previous ones which required excessive interaction with on-screen number pads and the like. The pointing function remains as good as ever. You can tell the TV to do things with the spoken word if you like to control your TV the hard way, but you can also use it to enter search terms into the web browser, which can actually be useful.

The convergence of information technology with consumer technology is now nearing completion. The current batch of premium TVs score at least four-core processors, and this one is no exception. That allows its upgraded WebOS 2.0 operating system to work



USB and others

Three USB sockets show how important these sockets have become in a world of digital playback, storage and streaming. There is both Ethernet and dual-band Wi-Fi for network connection.

HDMI & HDCP 2.2

This TV's HDMI inputs are all able to accept 4K at up to 60Hz and support the HDCP 2.2 copy protection system which Hollywood will inevitably insist on applying to 4K movies.



responsively (along with other things, such as FreeviewPlus becoming quite usable). There are lots of streaming apps available, some games (see panel).

Performance

Now, a caveat. LG seems to be a bit reluctant to ship OLED TVs all over the country for review, so they brought this reviewer to Sydney, putting both him and the TV up in a very nice hotel room. I brought my suite of test discs, of course, but do be aware that the environment was different to my normal one.

One way in which it was different was a hugely faster internet connection than is normally available to me. My own internet has been frozen in capabilities now for seven years, thanks to the 'promise' of NBN at some indeterminate time in the future. The connection in the hotel was fast enough to support UHD Netflix streaming. Back to that later.

Once again, we have a TV that is capable of extraordinary performance which, right out of the box, isn't delivering due to a few unfortunate settings. (Of course, I didn't take it out of the box, but I did reset everything to defaults so I had a clean slate to examine.)

First and worst, the TV defaults to the '16:9' aspect ratio even when playing full HD material from a Blu-ray disc. And this imposes a small amount of overscan, such that about 2% of each side of the screen is pushed off the display area. Go to the Picture settings menu and change the aspect ratio to 'Just Scan', which maps each incoming full-HD pixel onto four display pixels, with just a little processing around the edges of on-screen objects.

Actually, if I may dive deeply into this for a moment, one of the test patterns I use was quite revealing. It features a number of extremely fine crosshatch-like patterns. One of these is, horizontally, one pixel white, one black, one white etc, with the next line the same, except offset by one pixel. The others have slightly wider arrangements, such as two pixels of white, two of black, etc. The standard picture processing detects edges of onscreen objects and in turning one incoming pixel into four, it might darken or lighten or alter the colour of some to smooth jaggies. But if you try to do that with the finest of the crosshatches,

"So wonderful it looked that maybe, just maybe, UHD source material might just be worthwhile even on a 55-inch TV..."

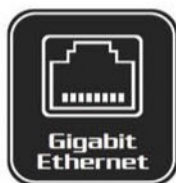
you're going to grey out the whole thing. The processing actually detected that alternating pixel arrangement and, upon close examination, I was able to see that what was shown on the screen were four white UHD pixels, then four black UHD pixels and so on. The larger crosshatches were softened a little by comparison because their hard edges were filed off by the upscaling.

Don't worry. This is all worthwhile. With normal programme material, and normal still photos and menu items and such, the smoothing delivers a significant improvement in picture quality. There didn't appear to be a way to switch this processing off anyway (i.e. just to map each full-HD pixel to four UHD pixels).

The next bad setting was the 'Sharpness' control default at the halfway mark, adding nasty edges to high-contrast material and generally making



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“With OLED, each pixel produces its own light, so there’s no need for a back light, permitting extremely thin panels...”

the picture fussy and tiring to look at. Dragging it down to zero produced a simply lovely picture.

The Contrast control can stand being pushed from 95 up to 100, otherwise the full brightness gamut isn’t being achieved. That probably isn’t very important, though, because of the great depths of the blacks.

Finally, I turned off the TruMotion motion smoothing system. The default setting was ‘Clear’, and this was just a touch too glossy for me, and occasionally produced some weird distortions with animated menus and the like, plus a modest amount of heat-haze distortion. But I should note that if you have TruMotion switched off and there is any judder inherent in the video, this TV will do nothing to disguise it. That’s because of the extremely fast switching speed of the pixels. If you find judder irritating, then try the User setting. Putting the ‘De-Blur’ setting to zero and the ‘De-Judder’ setting to ‘3’ reduced judder on the worst scenes without introducing significant distortions.

I guess I can talk about it now that they are no longer in the business: one of the test Blu-ray discs I use is from Pioneer, which the company created to show off the Kuro plasma TVs. This has colour flowers on black backgrounds, a photographer wearing a black leather coat in a darkish room decorated with black objects, a samurai wielding his sword in a black void. And you know what? With this TV it was perfect. In some of the scenes there was some noise in the black — at the source, that is — and this was clearly displayed. Where there was no noise, there was just black. I turned off all the lights in the hotel room and the blacks remained perfect. I paused the video and went up to the screen, placed my curled hand to my eye to block out the light from elsewhere on the screen, and examined a black corner of the picture minutely. And there was nothing to see, for it was black.

The only remaining imperfection will only be solved with some new

developments in glass. When I looked closely at still bright objects over a deep black background, there was a very slight diffusion of light around the edges of the bright object, thanks to some scattering of photons in the screen glass itself. That’s how picky I’ve had to become to say something negative.

With such deep blacks, whites actually appears whiter, and colours richer, yet still entirely natural.

I had quite a few UHD test clips, and these were displayed with dazzling clarity and sharpness. Likewise for a couple of nature things streamed in UHD from Netflix. The data flow was clearly adaptive to the circumstances of the digital pipe, so for the first few seconds it was decidedly sub-SD in resolution, then SD, then HD, then UHD. And so wonderful it looked that it got us thinking that maybe, just maybe, UHD source material might just be worthwhile even on a 55-inch TV.

The scaling and general picture performance was up to LG’s best, which is around as good as it gets.

The TV is, of course, 3D capable. It uses LG’s passive system and two sets of 3D eyewear are provided. Passive 3D TVs were by far the best when all we had were full-HD TVs. However the alternating lines of polarisation seem to be too close together with a UHD TV, resulting in a narrow vertical range of effectiveness. The result is that unless you sit a long way away from the TV, there’s a lot of crosstalk at either the top or the bottom of the screen, or both, depending on how high your eyes are with respect to the screen.

I wish LG would go to active 3D. With the near-instantaneous switching time of the OLED display, this would provide brilliant 3D performance.

I was unable to test the picture delay time without my normal equipment. There’s no reason to think it differs substantially from LG’s current batch of UHD TVs, say 100 to 120 milliseconds normally, and 40 to 50 milliseconds in Game mode.



Conclusion

You pay a premium for OLED. But dare I say, for the true enthusiast, it is a premium worth paying. In my opinion, the LG 55EG960T OLED UHD TV is the best 55-incher on the market, and I’d be pretty confident that the 65-inch version is likewise the best in its market segment. *Stephen Dawson*



SPECS

LG Electronics 55EG960T \$5999

Tested with firmware: Ver.03.03.06

Display technology: Curved OLED panel

Screen size: 138.8cm

Native aspect ratio: 16:9

Native resolution: 3840 x 2160

Brightness: Not stated

Contrast ratio: Infinite

Inputs: 3 x HDMI, 1 x composite video, 1 x component video, 1 x stereo audio, 3 x USB, 1 x Ethernet, Wi-Fi, 1 x aerial

Outputs: 1 x optical digital audio, 1 x 3.5mm headphone/analogue audio

Audio: 4 speakers, 2-way, 20W total power

Included accessories: Table-top stand, ‘Magic’ remote control, 2 x 3D glasses, cable adaptors

Energy rating: 3.5 stars, 466kWh per year

Dimensions without/with stand (whd): 1226 x 719 x 50mm/1226 x 760 x 213mm

Weight without/with stand: 15.3kg/18.9kg

Warranty: 1 year

Contact: LG Electronics

Telephone: 1800 725 375

Web: www.lg.com.au

NEW-TECH'15

JULY 31-AUG 2 | SYDNEY SHOWGROUND

SHOW GUIDE



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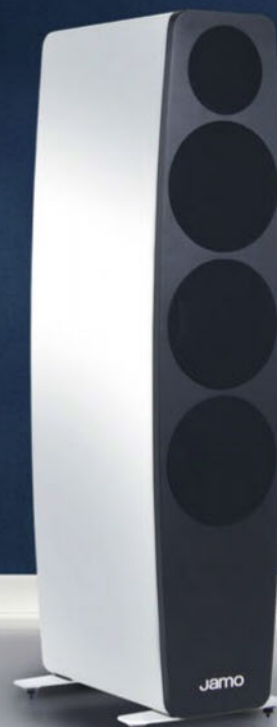
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WELCOME

Very often leader articles like this start with “We are delighted” or “We are pleased” or “We are excited” and so on... usually followed by “to this great new event/show/exhibition!” To be frank I was tempted to say the same, but when I thought about it, it genuinely seemed to be completely inappropriate under the circumstances. So I would like to break this habit and say... we are deeply gratified to be able to bring

this unique new show to you. Show organisers have ideas pretty well all the time – that’s what drives them, they are a highly entrepreneurial group of people, because what is not generally realised is that every new show is a ‘new business’, and for it to work, the idea not only has to have a market and an appeal but the Exhibitors also have to see its potential and cooperate with that pioneering spirit. Many, with regrets, do not, preferring to sit on the side-lines to see if it will really work, and that makes our job even harder... because if everyone did that, there simply would be no show. So this short article is devoted to two groups of people: those Exhibitors who have thrown their hats into the ring boldly, determined to benefit from it,

and secondly to our fantastic team in Australia, who have never fudged for one moment their belief in this project.

We hope their efforts speak for themselves in the resulting show. New-Tech has brought together the latest tech from photography, audio and AV, the automotive industry, and all manner of the latest developments – drones, 3D printing, the ‘internet of things’. We have not only what is perhaps the ultimate in electric vehicles, the Tesla Model S, we have the University of Western Sydney’s solar car project to show what can be done with no fuel other than the rays of the Australian sun. Or if fuel is not such a worry for you, there are Summernats’ custom street machines, showing the extremes of vehicular customisation.

The breadth and depth of exhibitors shows how deeply and quickly the latest technologies affect our everyday lives... the innovations we hear about one year become our indispensable tools the next. Hopefully this New-Tech show will give us all the chance to get ahead, informed, and ready for an exciting future.

IN THE SHOW GUIDE

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- 29 Recording Demonstration**
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More info: au.yamaha.com



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Bose will be giving away THREE SoundTouch Portable Wi-Fi music systems every day of the show! All you need to do is have a demonstration and complete an entry form to go in the draw.

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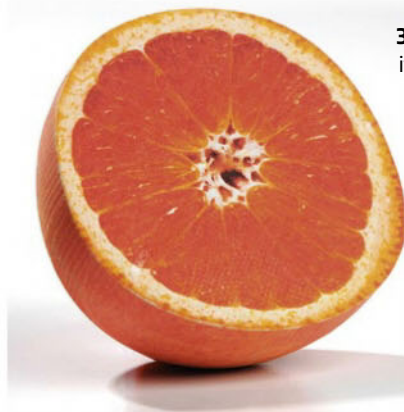


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TECH

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3D Printing — It's not an orange, it's a 3D-printed replica, made by Mcor Technologies' amazing 3D printer, the most economical and eco-friendly 3D printing anywhere, using plain paper, and producing no toxic waste. See it at the show. There's also T-Shirt printing at Digital Graphic Supplies' stand, with the chance to have your photo or selfie printed on your NewTech '15 T-Shirt...

Visit Stand 39



ActionCam adventure! — Adventurer, film maker and Sony ActionCam Ambassador Matt Gilsenan will be sharing his extreme adventures and sensational movies in person and on Sony Australia's big screen at **Stand 35**

Hear the Silent Guitars! — Yamaha's SLG is a brilliant idea... the perfect instrument for practice, travel or stage use – any time an acoustic guitar just won't do. Yamaha's exclusive SRT-Powered pickup system gives incredibly natural acoustic tone through headphones or line-out, with studio-quality on-board effects. Check them out at **Stand 2**



Digital cameras — For all the latest in digital camera technology visit Camera House at **Stand 33**



Driving sun — University of Western Sydney's student-led Solar Car Project is a green engineering marvel... It's at **Stand 50**



Parrot Drone Zone — Parrot's consumer drones are so upwardly mobile that they're building a cage zone at New-Tech to let you play in safety. Own the sky with the Parrot Bebop Drone with its full-HD camera, or roll and fly anywhere with the MiniDrone Rolling Spider. Of course there's more to Parrot than drones – connected audio, smart gardening, the Zik headphones and automotive hands-free and infotainment systems will all be on show at New-Tech! Find out more at **Stand 25**





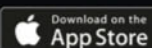
Parrot minidrones



NEW GENERATION LANDING
IN STORES SEPTEMBER 2015



FreeFlight 3



www.parrot.com/au

App Store is a service mark of Apple Inc. Google Play is a trademark of Google Inc. The Parrot Trademarks appearing on this document are the sole and exclusive property of Parrot S.A. All the other Trademarks are the property of their respective owners. PARROT SA - RCS PARIS 394 149 496.



SPECIAL ATTRACTIONS – AUTOMOTIVE

The auto sector delivers some of the world's highest tech in materials and control systems, cars, superbikes and in-car communications technology...



Tesla Model S — Tesla electric motors have only one moving piece: the rotor. As a result, Model S acceleration is instantaneous, silent... and smooth. Witness the ultimate in electric car technology, at **Stand 53**



AudioXtra is bringing the best in-car audio to the Show — including Blaupunkt's Cape Town 940, the ultimate in-car multimedia and infotainment. Control smart-phone content via mirror mode and access the world with built-in internet browsing! **Stand 59**

SUMMERNATS — the annual car festival of elite street machines held each year in Canberra is visiting New-Tech with a sample of those award-winning machines! See the tech, hear the quality, and get the latest Summernats news at **Stand 58**



Yamaha's flagship supersports — Yamaha's amazing new YZF-R1 is designed to dominate on the racetrack as well as the highway... the new machine mates a high power, high torque engine to a lightweight chassis and wheels — and a huge number of control technologies... "insanely fast, insanely civilised and rideable" says Boris Mihailovic of Bike Me. Got the need for speed? **Visit Yamaha on Stand 2**

AktiMate

SEE US AT
STAND NO. 26

AktiMate are an active speaker system with an integrated DAC and amplifier. Take it home and set it up literally within minutes. Every connection cable you might need is right there in the box. Listen to your favourite music instantly!

- Play your favourite music straight from your smart phone or tablet
- Connect to any hi-fi music source: computer, CD player or even TV



AKTIMATE Blue

What Hi Fi UK Magazine speaks of the Blue as 'a great sounding alternative to traditional hi fi.'

RRP \$1,095



AKTIMATE Mini + B

"A versatile product that offers a sound traditional docks can only dream of .."

What HiFi UK Magazine

RRP \$795



AKTIMATE Micro B

"The Micro's sock-it-to me sound is likely to bring massive pleasure to listeners of all breeds"

Geare Australia

RRP \$545



Enjoy the benefits of this superbly engineered high quality hi-fi product at an amazingly affordable price. All three models available in Black, Red or White.

AUDIOHEAVEN

Find your closest stockist at
www.audioheaven.com.au/aktimate-dealers

AV

SPECIAL ATTRACTIONS – AUDIO & AV

Don't miss the special Sound Studios and Audio Booths at the show – and there's plenty more thrilling audio & AV gear on the main floor.



Barco Orion Cinemascope projector — *Transformers* director Michael Bay recently selected a Barco projector for what he describes as "one of the very best home theaters in the world" in his newly constructed California home. You can find out why, when you see this new compact projector with native Cinemascope resolution and unrivalled image quality. Find out more about Barco Residential at Network Audio-Visual's **Stand 10**



It's above you! — Experience the new dimension in home cinema with QualiFi's Marantz and M&K Dolby Atmos system in **Sound Studio 3**



Definitive Technology — From new active NC headphones to the 'W' wireless multiroom range and a Dolby Atmos demo... it's all happening at Audio Connection's **Stand 4**



McIntosh — From the legendary American marque, the MC452 is the most powerful McIntosh stereo amplifier at 450 watts per channel, the latest circuit components deployed in the classic McIntosh Quad Balanced design. Soak up the sounds at **Stand 3**



Audiofly — Be among the first to hear new-release AF240 and 240+ over-ear headphones, built with die-cast aluminium, "a sensory delight" aiming to deliver beautifully balanced, honest sound... **Stand 8**

Astell&Kern — Astell&Kern's high-res audio portables have won awards and fans around the globe. Now you can hear why at BusiSoft AV's **Stand 8**



LG 4K OLED TV — The only company with the technology and capability to successfully meld 4K Ultra HD and OLED technology into a large-screen TV. See its amazing images at **Stand 32**



Vivid Audio GIYA loudspeakers — Legendary speaker designer Laurence Dickie was responsible for the famous B&W Nautilus design, and the Vivid Audio GIYA speakers take his tube-loaded designs to a new level in these astonishing audio sculptures that are designed for sound, with their unique visuals a by-product of the highest levels of audio engineering. Multiple award-winning designs, the Vivids are rarely put on public show, so don't miss this chance to hear their amazing sound. Ogle those curves and find out more: **visit Sound Studio 4**



KRELL iBIAS CLASS A AMPLIFIERS

The radical new KRELL iBias power amplifiers combine the musicality of Class A with high energy efficiency. iBias technology eliminates crossover distortion producing the low level detail, subtlety and spatiality of traditional Class A designs with almost limitless dynamics that is the hallmark of Krell's sound.

KRELL
THE LEADER IN AUDIO ENGINEERING



TRIANGLE LOUDSPEAKERS

Since its early beginnings in 1980, TRIANGLE has made research and technological innovation its priorities, with the ultimate aim of offering music-lovers a natural sound of very high quality. This constant improvement and innovation is what makes Triangle loudspeakers unique. And for the first time the new Australian distributor Audio Marketing ensures that the complete Triangle Range is available to the discerning Australian music lover through its network of authorised hi-fi dealers across the country.

TRIANGLE
MANUFACTURED IN FRANCE



MUSICAL FIDELITY MX-DAC

After years of superb DAC delivery, MUSICAL FIDELITY is proud to launch the new MX-DAC with DSD. Technical innovation, superb performance and excellent build quality combine in the MX DAC to offer truly outstanding value for money, although the ultra low distortion, very wide bandwidth and low noise ensure superb performance comparing favourably with any other DAC on the market regardless of price. High-end in sound, with a small footprint.

MUSICAL FIDELITY



STAX SR 009 ELECTROSTATIC HEADPHONES

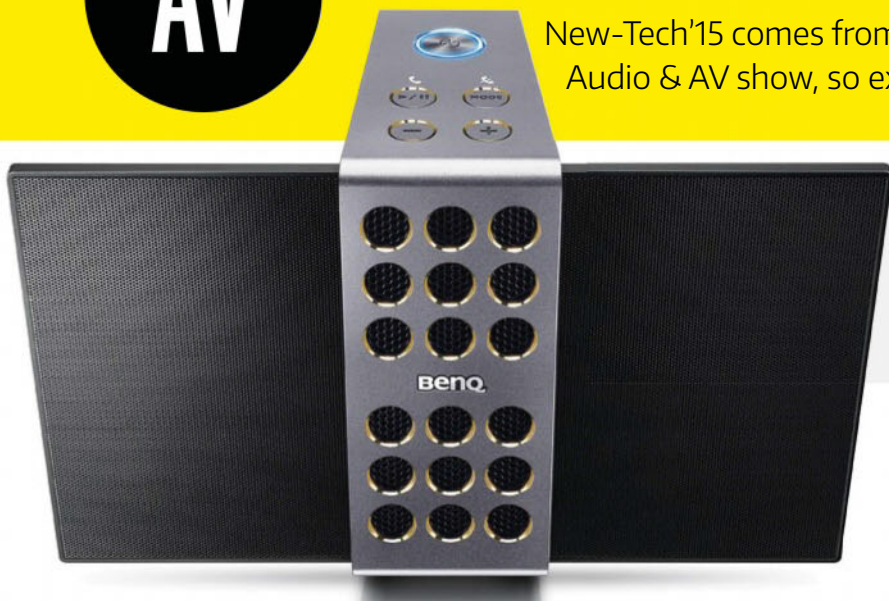
STAX is recognised as the world leader in Electrostatic Headphones. The SR 009 is the finest example of their work ever produced. The SR 009 features a new ultra-thin element and breakthrough multi-layer electrode technology in a precisely engineered rigid lightweight aluminium enclosure. Designed to partner with the Stax 007t Mk.2 high performance vacuum tube driver unit, these Stax models are the ultimate in headphone technology and performance.

STAX

AV

SPECIAL ATTRACTIONS – AUDIO & AV

New-Tech'15 comes from the team behind the Australian Audio & AV show, so expect to hear some thrilling sounds...



BenQ's treVolo – This unique Bluetooth portable audio system uses electrostatic-panel wings to create an airy treble plus conventional woofers for the bass... with Bluetooth streaming and battery operation it's a portable sound system that will impress even audiophile listeners. Hear its sound and ask about BenQ's 30-Day Money-Back Guarantee on the treVolo at **Stand 19**



Rhyme Acoustics – Just launching in Australia, Rhyme delivers high-spec speakers and amplifiers at affordable prices. The New-Tech show is a unique chance to hear these new models – visit **Stand 22**



Triangle loudspeakers –

Audio Marketing has gained the Australian distribution of French brand Triangle, a wide-ranging and technology-led speaker company based in Picardy's Villeneuve-Saint-Germain, France. Triangle designs and engineers its speakers in France, and still handcrafts its high-end models there. Triangle's ranges cover everything from top-end loudspeakers to smaller models suitable for desktop listening – and you can find out all about them at Audio Marketing's **Stand 7**



The AURALiC Aries

Don't miss the stunning looks and world-class audio streaming of the AURALiC Aries! Meet the future of audio at BusiSoft's **Stand 8A**



Zoom's unbelievable new F8 –

It's the world newest and smallest pro field recorder, just one of Zoom's now legendary set of recorders, capturing high-res audio from stereo to eight-track, and with astounding versatility: **Stand 34**

camerahouse

LATEST RELEASES AVAILABLE NOW

Nikon

OLYMPUS

GoPro
Be a HERO. ■■■■

Canon



HERO4
SESSION



 FIND US AT **STAND NUMBER 33**

 13 FOTO (133 686)  www.camerahouse.com.au

HOME SPECIAL ATTRACTIONS – HOME TECH

With the internet of connected things growing by the hour, find out how to make your home the smartest house on the block...



Yamaha Disklavier – It's the smartest piano in town! Disklavier technology allows you to record and play back, or can just play on its own from supplied CDs. Hear the latest model on **Stand 2**



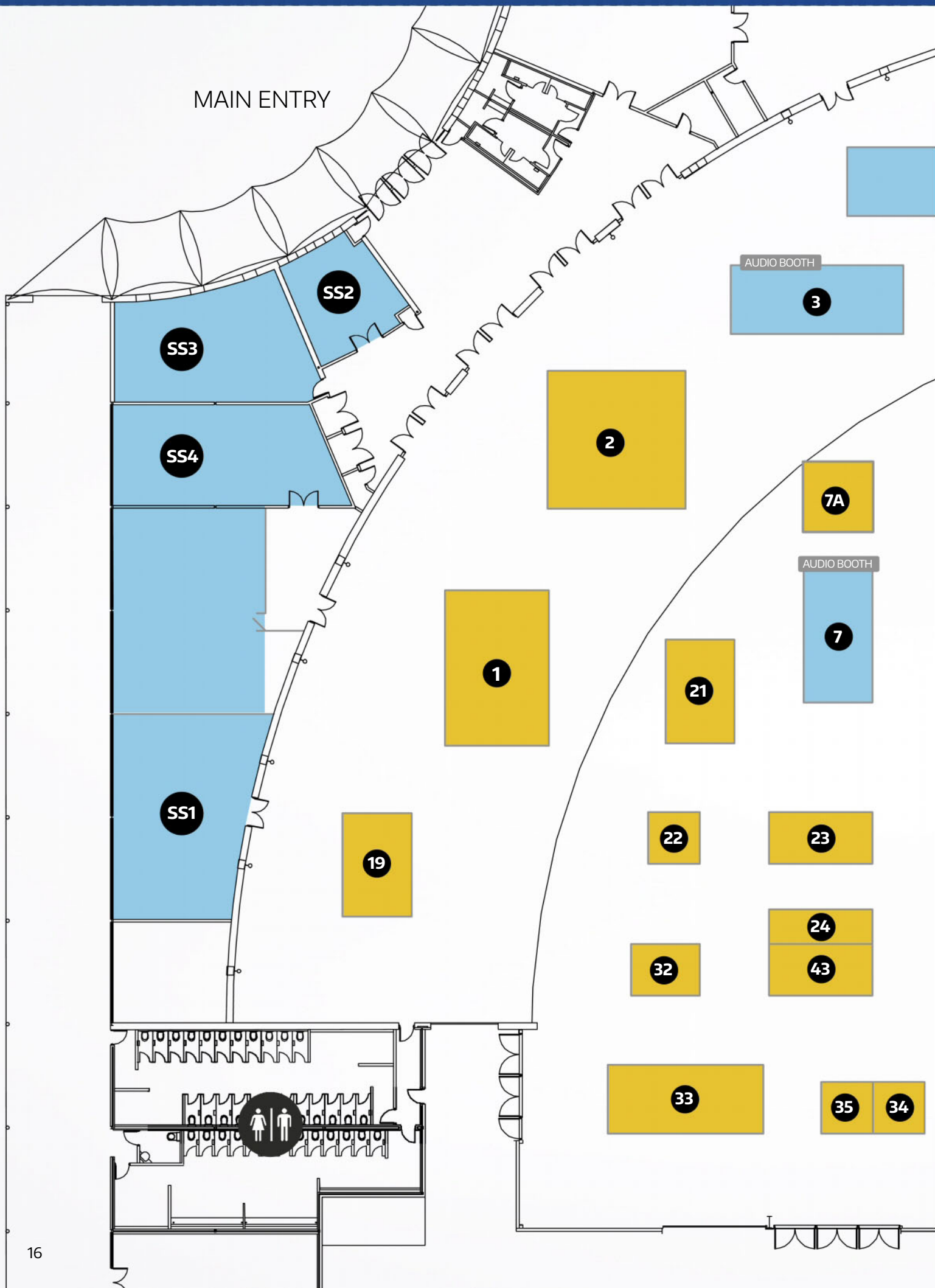
Smart home integration – Always dreamed of a home where lighting, security, entertainment and more are combined seamlessly under smart control? Today a smart home is easier than ever, and can be fully installed at a price that may surprise you. New-Tech offers several chances to find out what can be achieved... Ask about Control4 and the Autonomic Mirage at **Stand 4**, and about Clare Controls on **Stand 10**



HEOS by Denon – Wireless multiroom music is the ultimate way to create a home full of sweet music, all under smart app control from your smartphone or tablet. HEOS is Denon's award-winning Wi-Fi multiroom system, with speaker units, a soundbar home cinema solution and more... See how easily it all works together by visiting QualiFi at **Stand 21**



MAIN ENTRY



VISITOR MAP

Hall 5 Sydney Showground

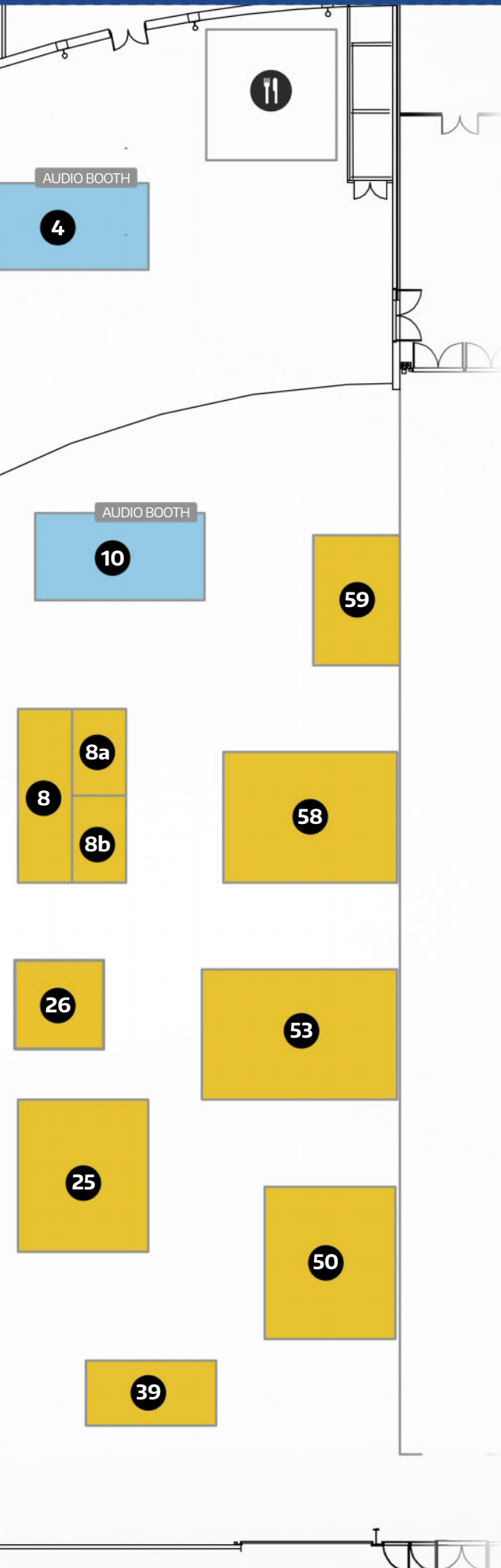
(To find a company or brand alphabetically, use the full Brand Listing on p30.)

SOUND STUDIOS

SS1	Sound Studio 1	Live Recording Demo
SS2	Sound Studio 2	Redefy Audio Pty Ltd
SS3	Sound Studio 3	QualiFi Pty Ltd
SS4	Sound Studio 4	Avation

STANDS

1	Bose	
2	Yamaha	
3	Synergy Audio Visual	AUDIO BOOTH
4	Audio Connection	AUDIO BOOTH
7	Audio Marketing	AUDIO BOOTH
7A	Stax	
8	Astell&Kern	
8a	BusiSoft AV	
8b	BusiSoft AV	
10	Network Audio Visual	AUDIO BOOTH
19	BenQ Australia	
21	QualiFi	
22	Otomoto (Rhyme Acoustics)	
23	Audiofly	
25	Parrot	
26	Audio Heaven	
32	LG	
33	Camera House	
34	Dynamic Music	
35	Sony Australia	
39	Digital Graphic Supplies	
43	NextMedia	
50	University of Western Sydney-Solar Car Project	
53	Tesla Motors	
58	Summernats	
59	AudioXtra	



EXHIBITOR LISTINGS...

**Bose Pty Limited**
STAND 1

Bose Corporation was founded in 1964 by Dr. Amar G. Bose, professor at the Massachusetts Institute of Technology. Today, the company is primarily known for acoustics; Bose inventions have improved performance in many areas of home and professional audio. Its research has also resulted in products for non-audio.

BOSE PTY LIMITED**(02) 8737 9999** www.bose.com.au**Yamaha Music Australia**
STAND 2

Steeped in time-honoured traditions of craftsmanship and innovation, Yamaha continues to explore the limits of technology, and by doing so has secured its position at the forefront of the world stage and race track. Experience the world of Yamaha. Two Yamahas, One Passion.

YAMAHA MUSIC AUSTRALIA**1300 739 411** au.yamaha.com**Synergy Audio Visual**
STAND 3

Synergy is proud to show the world's most exciting and sought after Hi-Fi brands – Audio Research, Cambridge Audio, ELAC, McIntosh, Origin Acoustics, Rega, REL, Ruark Audio and Sonus faber. Visit our display suite and meet some of our international partners and our experienced sales team.

SYNERGY AUDIO VISUAL**(03) 9459 7474** www.synergyaudio.com**Audio Connection**
STAND 4

Since 1987, Audio Connection has been bringing the very best in audio and automation to Australian home owners. Whether your needs are audiophile, lifestyle audio or you're after your next smart home, we have the solution for you.

AUDIO CONNECTION**1300 761 022** www.audioconnection.com.au**Audio Marketing**
STAND 7

An exciting new era for Audio Marketing begins. New products and a new association with Triangle loudspeakers from France, plus the latest innovations from both long-term and new partners: Krell, Musical Fidelity, Peachtree Audio, Stax Earspeakers, Perreaux, Goldring, Milty, Soundstyle and ETI Cables.

AUDIO MARKETING**(02) 9882 3877** www.audiomarketing.com.au**BusiSoft AV – Astell&Kern / Audeze**
STAND 8

Announcing the release of Astell&Kern's new-generation AK380 and AK Jr high-res Portable players along with the debut of their desktop system, the AK500N. Alongside will be the local release of Audeze's entry-level EL-8 Planar-Magnetic headphones and Final's flagship over-ear Sonorous VIII & X headphones.

BUSISOFT AV PTY LTD**(03) 9810 2900** www.busisoft.com.au

SEE US
AT STAND 59

The new CAPE TOWN 940



IT WILL **BLAU** YOU AWAY!

BUILT-IN APPS



YouTube



Facebook



Twitter



Shazam



Spotify



Tune-In



Accuweather



Amazon MP3

FULL CONTROL WITHOUT TOUCHING YOUR PHONE.

Bluetooth

DVD
VIDEO

USB
4x

SDHC
MP3
WMA

Steering
Control
Input



MIRROR MODE



INTERNET BROWSING



NAVIGATION

Control all your smartphone content on the vivid and large 6.8" touchscreen display. Enjoy seamless crystal clear connection whether it's sending a text or an email or even playing your favourite games, the Cape Town gives you full control of all your media, apps and files.

Full internet connectivity to enhance your driving experience. Catch up on all the latest sports, news, weather and a wide choice of online entertainment. Connecting is easy. You can use your smartphone as a personal hotspot or simply connect to local WiFi via the included USB WiFi dongle.

An absolute must for a first class multi-media and infotainment unit is a flawless navigation system. Travel with ease and in style with the Cape Town 940. The feature-rich and intelligent iGo Primo navigation software will get you to your destination quickly and without any hassle.



Made for
iPod iPhone

www.audioextra.com.au

BLAUPUNKT

EXHIBITOR LISTINGS...


AURALiC
 inspire the music
BusiSoft AV – Auralic
 **STAND 8A**

With the ever-growing market of streaming, we are re-introducing the Auralic Aries with the new Lightning DS 2.0 software which improves on the building blocks they have already established.

BUSISOFT AV PTY LTD**(03) 9810 2900** www.busisoft.com.au

BRYSTON
BusiSoft AV – Bryston
 **STAND 8B**

Featuring the latest brand to join our portfolio, Bryston is a well-known and established brand in the high-end audio and professional markets, known for its reliability and performance. A range of Bryston gear will be on display, as well as a first sighting in the Australian market.

BUSISOFT AV PTY LTD**(03) 9810 2900** www.busisoft.com.au

BARCO
 Visibly yours
 RESIDENTIAL
Barco Orion / Screen Innovations
 **STAND 10**

Barco is a world leader in Professional Digital Cinema with over 40% of Commercial Cinemas using Barco – now it's your turn! NAV will debut the latest in Home Cinema with the new Barco Orion native 2:35 projector, combined with the latest screen from Screen Innovations. This is a must-see at New-Tech!

NETWORK AUDIO VISUAL**02 9949 9349** www.networkav.com.au

BenQ
 Because it matters
BenQ
 **STAND 19**

Set apart by the unique philosophy of "Because It Matters", BenQ is committed to empowering people to live better, efficient driven and healthier lives. Our people drive innovation towards products, services and solutions with cutting edge technology. BenQ represents the epitome of thought leadership and innovation.

BENQ**(02) 8988 6512** www.benq.com.au

HEOS
 BY DENON
HEOS
 **STAND 21**

Introducing HEOS by Denon, a state-of-the-art wireless multi-room audio system that fills any number of rooms with great sound from all your favourite music sources. Choose from elegantly designed, compact wireless speakers or models that plug into your existing sound system or TV.

QUALIFI P/L**(03) 8542 1111** www.heos.com.au

R
Rhyme Acoustics
 **STAND 22**

The Rhyme Acoustics brand is launching now in Australia, offering high specification speakers and amplifiers at affordable prices. All of our current models will be on display and ready to audition. Have a listen and be surprised!

RHYME ACOUSTICS**(02) 8677 4890** www.rhymeacoustics.com.au

D.

DEFINITIVE TECHNOLOGY



See us at the
Audio Connection
Stand 4 at New-Tech'

D.

RIVEN BY PASSION



At Definitive Technology, we're driven by passion. Passion for music, passion for style, and a passion for perfection. Our new Wireless Music System delivers a natural sound and a broad soundstage with no loss of quality from all kinds of music sources. This system will give you audiophile-grade music in all areas of the house, all controlled from the convenience from a simple app driven by DTS Play-Fi. Designed to work on its own, integrated with an automation system, or combined with your existing audio system, the Definitive Technology Wireless Music System is the name of audiophile wireless sound.

Visit advanceaudio.com.au/definitive/ for more information.

W9

COMPACT AUDIOPHILE
PERFORMANCE



EXHIBITOR LISTINGS...

**Audiofly**
STAND 23

Designed in Perth, Audiofly produces headphones and In Ear Monitors for those passionate about music, with an eye on classic design and speaker technology to push new boundaries. Audiofly has also partnered with Tiesto to present the Clublife headphone range.

AUDIOFLY**(08) 6555 1802** www.audiofly.com**Parrot ANZ Pty Ltd**
STAND 25

Parrot creates, develops and markets advanced technology wireless products in three primary markets: Civil drones (leisure quadricopters and solutions for professional use); Connected objects (with a focus in audio and gardening); and Automotive (the most extensive range of hands-free and infotainment systems).

PARROT ANZ PTY LTD**(03) 9694 4414** www.parrot.com/au**Audio Heaven**
STAND 26

ON SHOW – Just arrived from renowned German manufacturer Einstein, “The Tune” and the “Little Big Phono” amplifiers. Also just in from Japan, the highly acclaimed SPEC RSA717EX amp. See the AktiMate range of Bluetooth-enabled active speakers, plus the YBA Genesis top-loading CD player.

AUDIO HEAVEN**0412 650 723** www.audioheaven.com.au**LG Electronics**
STAND 32

A true Australian first for home entertainment: LG is the only company with the technology and capability to successfully meld 4K Ultra HD and OLED technology into a large-screen TV and the results are simply stunning, set to inspire Australian consumers with a TV viewing experience unlike anything they've seen before.

LG ELECTRONICS AUSTRALIA**1300 542 273** www.lg.com.au**Camera House**
STAND 33

Established in 1983 by a group of independent photographic retailers, Camera House has become the largest speciality photographic retail chain in Australia, widely recognised by the strong blue, yellow and white signage. At New-Tech we're showing the very latest in digital cameras and equipment.

CAMERA HOUSE**131 686** www.camerahouse.com.au**Zoom Australia**
STAND 34

Visit the Zoom Australia stand to see the absolute latest in field recording and audio interfaces. From the incredibly handy and affordable H1 to versatile H6 and the unbelievable new F8, the world's newest and smallest pro field recorder, Zoom will open your eyes (and ears) to what can be achieved. At Zoom, we're for creators.

DYNAMIC MUSIC AUSTRALIA PTY LTD**02 9939 1299** zoomaus.com.au



THE FINEST MUSICAL PERFORMANCE

EVEN IN SMALL SPACES

Not everyone has the space available to accommodate large loudspeakers, but most of us still demand the finest musical performance, and it was with this in mind that Vivid developed the Giya G4.

Standing just one metre high, the new G4 packs all the unique features of the larger models in the Giya range into a compact loudspeaker. Its superior performance is made possible by two brand new drivers designed specifically for the Giya G4; the C100S low-midrange driver, which retains the focused-field radial magnet design of its larger predecessor, and the new C125L long-throw bass driver which delivers deep, rich bass through the use of the extended gap design used in the rest of the Giya range.

Exceptional purity through the midrange and high frequencies is assured by the combination of the D50 and D26 aluminium/magnesium alloy and carbon-fibre dome drivers. The unique design of all the drivers, and the cabinet, ensure the G4 is resonance-free over the whole audio band, and thanks also to their patented catenary domes and exponential tapered tube loading, these sophisticated units deliver a high frequency performance that extends well beyond the range of human hearing.

The Giya G4 embodies all the essential features inherent in the Giya range without compromise, to deliver a result that is completely worthy of carrying the name Giya.



VIVID audio

Proudly distributed in Australia by Avation
For more information visit www.ovation.com.au

ovation

EXHIBITOR LISTINGS...



Sony Australia

 STAND 35

Sony Australia is a leading manufacturer of audio, video, communications and information technology products for the consumer and professional markets. The range includes BRAVIA TVs, Cyber-shot digital cameras, Handycam camcorders, digital SLR, POV cameras, Walkman players, as well as HD pro broadcast equipment.

SONY AUSTRALIA

 (02) 9887 6666 sony.com.au


DGS3D

 STAND 39

DGS3D is the official Australian reseller of the Mcor Iris 3D paper colour printer; we are also the reseller of (DTG) direct to garment printers.

DGS3D

 (02) 9683 7857 www.dgs3d.com.au www.dtgaustralia.com.au


Next Media

 STAND 43

Next Media is Australia's #1 special interest digital and print media publisher and the fourth largest magazine publishing group overall – our AV and tech titles include AVHub.com.au, Australian Hi-Fi, Sound+Image, Australian Camera, Incar, ProPhoto, Audio Esoterica, Best Buys Audio & AV and Popular Science Australia.

NEXTMEDIA PTY LIMITED

 (02) 9901 6100 www.avhub.com.au


UWS Solar Car Project

 STAND 50

UWS Solar Car Project is a student led, non-profit green initiative.

The project strives to push the boundaries of innovation and precision engineering with a social and sustainable responsibility to the whole community.,

UWS SOLAR CAR PROJECT

 0425 244383 uws.edu.au/solarcar


TESLA Motors

 STAND 53

Tesla's advanced electric powertrain delivers exhilarating performance. Unlike a petrol/gasoline internal combustion engine with hundreds of moving parts, Tesla electric motors have only one moving piece: the rotor. As a result, Model S acceleration is instantaneous, silent and smooth.

TESLA MOTORS
www.teslamotors.com/en_AU/models


Summernats Car Festival

 STAND 58

Every year, up to 1800 of the toughest Australian elite street machines descend on Exhibition Park in Canberra from around Australia and the world. This diverse tribe gathers to show off their love of the street machine to an enthusiastic crowd of over 100,000 people. See a sample of our awardwinning vehicles at New-Tech!

SUMMERNATS CAR FESTIVAL

 (02) 6241 8111 www.summernats.com.au

AUDIO HEAVEN

www.audioheaven.com.au



LUMIN D1 Network Audio Streamer

With a compact case and a single circuit board design, the Lumin D1 retains all the award-winning musicality of the bigger models while compromising as little as possible in every other area.

"...but any way you look at it, this is like getting 90% of the product for less than a third the price."

What's not to like about that?"

Nicholas Ripley, HiFi+ magazine (UK)

All LUMIN players are controlled by the Lumin App, created to deliver the most intuitive and visually rich way to browse, select and play your music collection.



JUST RELEASED



YBA Heritage D100 DAC

The D100 is the first YBA product to include DSD 128. It features three digital inputs plus Bluetooth 4. The

D100 has a coax digital output together with both RCA and XLR analog variable output options and upsampling if desired. Available in either black or silver.



SPEC RSA-M3EX Real Sound Amplifier

"If you're interested in an amplifier with the beauty, tone colour, timbral naturalness, and rich stereoscopic musicality of the best vacuum tube designs in a non-fussy and classy solid-state design, I suggest that you listen to the SPEC RSA-M3 EX amplifier. You may very well decide it is one of the best amplifiers out there regardless of price. At least that's my take on the SPEC, and I suspect it'll be yours too if you get a chance to give it a listen." Jeff Day, jeffsplace.me



NEW-TECH'15 SEE US AT STAND NO. 26

For more information on any of our products, drop us a line at info@audioheaven.com.au or check us out online at www.audioheaven.com.au

LUMIN YBA ALLNIC AUDIO high fidelity cables dclaudio hFX ROCKNA SPEC

EXHIBITOR LISTINGS...

**AudioXtra**
STAND 59

AudioXtra spans 35 years of Australian ownership & leadership in Mobile Electronics & Acoustic Solutions. Check out the latest in-car entertainment & innovation from Axis & Blaupunkt, along with the world's no.1 sound-deadening solution from Dynamat & the best in action cameras from Midland.

AUDIOXTRA**(02) 8841 9000** www.audioxtra.com.au**High-Res Recording Dem**
SOUND STUDIO 1

"Why do recording engineers have to mess with the sound?"

Audiophiles often ask these questions, but the answers are not always forthcoming. Greg Simmons, a writer, educator, traveller and sound recordist with 30 years of experience, aims to answer these questions through demonstration with an on-site high-resolution direct-to-stereo recording session.

**Redefy Audio Pty Ltd**
SOUND STUDIO 2

Based in Sydney, Australia, focusing on high performance and high sensitivity speaker systems, exclusively made in Australia with materials from Europe and Asia. We are also proud to partner our speakers with great amplification from Arte Forma Taiwan, truly high-end performance in every aspect!

REDEFY AUDIO PTY LTD**0405 837 332** www.redefyaudio.com**QualiFi P/L**
SOUND STUDIO 3

Hear the whole picture with a Marantz Dolby Atmos demonstration – partnered with an awesome M&K speaker system. Also listen to the breathtaking NAD Masters series, experience the latest Concerts from Jamo and see turntables from Thorens.

QUALIFI P/L**(03) 8542 1111** www.qualifi.com.au**Avation**
SOUND STUDIO 4

Avation presents the new Vivid G4 on display for the first time in Australia. Also presenting RTI Home Automation and Luxul wi-fi and networking gear. Make sure you come and experience the SpeakerCraft Series 2 and Pro Control Remotes...

AVATION**(07) 55 803 300** www.avation.com.au**ALL THE TECH. ALL THE TIME.**

News and reviews from Australian Hi-Fi, Sound+Image, Incar, Camera & ProPhoto. All the top tech titles, together 24/7, at

www.AVHub.com.au

10 REASONS TO BUY HI-FI AT A HI-FI SHOP



**YOUR LOCAL HI-FI SHOP IS PASSIONATE ABOUT SOUND.
WHY RISK YOUR MUSIC WITH ANYONE ELSE?**

THE HI-FI SHOP

Talk to people with years or decades of hi-fi knowledge

Receive reliable personal advice

Expect to be asked about your needs and music

Listen in a room environment before you buy

Have a nice coffee

Purchase with pride

Get a full warranty with local return point

After-sales service

Have an ongoing relationship

Relax and enjoy fine music

THE CHAIN STORE

01 Talk to people with days or even weeks of hi-fi knowledge

02 Bit of a lottery on the advice front

03 Expect to be asked about your budget

04 Listen over a noisy shop floor if you can listen at all

05 There's a coffee shop three doors down in the Mall, mate

06 Purchase in ignorance

07 Be offered an extended warranty you probably don't need

08 After-sales what?

09 Rarely the same staff twice

10 Relax and enjoy your mass-market bargain

THE INTERNET

No people

No advice

No filtering questions

No listening

Make your own

Purchase with fear

Warranty possibly void in Australia

After-sales what?

No contact with staff

Purchase and pray



LOCAL HI-FI SHOPS.

The right place for the right sound.



SOUND STUDIOS & AUDIO BOOTHS

At this show you can hear the hi-fi, not just see it on an open exhibition stand – check out the Sound Studio spaces and special Audio Booths...

Sound Studios

(separate rooms – see map p16/17)

Avation: the Vivid Audio G4 loudspeakers, plus RTI Automation, Luxul, Pro Control and SpeakerCraft – **Sound Studio 4**

QualiFi: Enjoy a Marantz Dolby Atmos demonstration!, partnered with M&K loudspeakers... also NAD Masters Series, Jamo loudspeakers and Thorens turntables – **Sound Studio 3**

Redefy's Australian high performance loudspeakers partnered with amplification from Arte Forma Taiwan – **Sound Studio 2**

Audio Booths

(on the main floor – see map p16/17)

Audio Connection: audiophile, lifestyle audio and smart home systems – **Stand 4**

Audio Marketing: Triangle loudspeakers, plus Krell, Musical Fidelity, Peachtree, Stax, and more... **Stand 7**

Network Audio-Visual: home cinema with Barco Orion Cinemascope projection and Screen Innovations – the projection screen that went into space! **Stand 10**

Synergy Audio-Visual: Audio Research, Cambridge Audio, ELAC, McIntosh, Origin Acoustics, Rega, REL, Ruark and Sonus faber – **Stand 3**



MASTER
CLASSHIGH-RESOLUTION AUDIOPHILE
RECORDING DEMONSTRATION

On Saturday and Sunday at New-Tech'15, there's a unique chance to join a special presentation demystifying the recording process and demonstrating it with an on-site high-resolution direct-to-stereo recording session.

SOUND STUDIO 1

11:00 to 13:00:
Spoken presentation

13:00 to 14:00:
Lunch

14:00 to 16:00:
Recording session

"Why do recording engineers have to mess with the sound?"
"Why won't they let me hear the music in its purest form?"

Audiophiles often ask these questions, but the answers are not always forthcoming! This presentation aims to answer these questions by demystifying the recording process and demonstrating it with an on-site high-resolution direct-to-stereo recording session.

The presentation will begin with an overview of the recording process, explaining how it has evolved and diversified to suit the aesthetics and market expectations of the different genres of music that are available in recorded form.

The presentation then focuses on the numerous methods used for making high-resolution direct-to-stereo audiophile recordings that attempt to capture a performance with as little processing as possible. Theoretical 'ideal' situations are described, practical real-world limitations are introduced and necessary compromises are discussed with the aim of meeting the expectations of the audiophile market.

Following the lunch break, the attendees are taken through the process of making a high-resolution

direct-to-stereo recording of a n acoustic performance in the presentation room. After an appropriate stereo microphone technique has been chosen and placed, the attendees become the audience for the live performance recording. Following the recording is time for questions, discussion, listening sessions and more.

The raw high-resolution recording will be available to attendees following the presentation, and a mastered version will be available for download at a later date.

Presented by Greg Simmons.

Greg Simmons is a writer, educator, traveller and sound recordist with 30 years of professional audio teaching experience.

Greg's audio teaching is backed by 35 years of professional recording experience encompassing everything from heavy metal bands to string quartets, Tibetan monks to snake charmers, and children's stories to talking dolls. He has also had extensive sound reinforcement experience including rock, pop, jazz and orchestral music, along with theatre, dance and performance

art. He gave his first audio classes in 1985 and has since taught hundreds of students the finer points of sound engineering in an effort to pass on his enthusiasm for good quality sound in every genre.

Greg has been actively involved in editing and publishing magazines for the Australian audio industry since 1987, and has often been published in major US and UK audio magazines. As creator and founding editor of the prestigious Australian magazine AudioTechnology, he regularly contributes feature

articles, interviews, tutorials and product reviews.

Greg enjoys combining his writing, teaching and recording skills with his passion for travelling, and spends most of his spare time on location recording the music and sounds of Asia and the Himalaya. Since 2005 he has taken over 70 audio students and musicians on educational world music recording expeditions through Nepal, Tibet, India, Burma, Borneo and Thailand.

He also enjoys writing of himself in the third person.

BRAND LISTING

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SOMETHING
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IS COMING

20 AUGUST 2015
11 PM

#HOME OF SOUND



**SOUNDBARS &
BASES BY REAL
HI-FI COMPANIES**

Arcam Solo Bar & Solo Subwoofer, Cambridge Audio TV5 soundbase, Definitive Technology W Studio, LG LAS950M soundbar & subwoofer



A Better Breed of Soundbar

Soundbars seem to be entering a second stage of evolution. At the beginning it was all about having a small décor-friendly alternative to a proper surround sound solution. Problem was, small and décor-friendly often meant that the sound quality was equally small; there were a few standout performers among them, but soundbars as a breed developed a dreadful reputation among audio fans, especially when it came to playing music as well as TV sound.

But they have been highly successful in the market. More recently this has led serious audio companies to reinvent the concept, delivering premium soundbars (and in one case here, a sound base) that aim to offer serious sound while still keeping the TV area neat and tidy. Even among these, there are key several variations in design.

Simple connections. Soundbars can be very simple in connection terms, taking a single analogue or

optical connection from your TV, to which you keep everything else (Blu-ray, PVRs etc) connected as normal, by HDMI. This is very neat, but has the disadvantage that many TVs often pass only stereo sound from their HDMI inputs to their optical audio outs. So if the soundbar has Dolby Digital or DTS processing inside, it may not receive the required surround information signal to use that processing.

Connections hub. Or the soundbar can be a connection hub itself, with HDMI inputs and an HDMI output — this also has a disadvantage in potentially making the back of your soundbar a mess of cables (which goes rather against the original criterion of being décor-friendly). But receiving HDMI inputs does allow the soundbar to access audio signals that are undamaged by transition through the TV.

Hence it tends to be the more upmarket bars offering Dolby Digital and DTS decoding that adopt the hub connection method; also the way that HDMI licences are charged makes it easier (cheaper) for large companies than small ones to include HDMI.

Bluetooth and multiroom. Bluetooth is a useful extra connection for streaming music to a soundbar, while remembering that most soundbars aren't the purest way of playing back music. Two of the four soundbars here are also part of wireless multiroom systems, so can access streaming music services and even send the TV sound off to other speakers in the home. If you're building a multiroom system, these can become quite powerful additions. And we were, on the whole, pretty impressed...



Raising the Bar

Firmly upmarket at \$3398 with the subwoofer, Arcam's Solo solution is fully-featured and heads into true hi-fi territory.

SUMMARY

Arcam Solo Bar and Solo Sub

soundbar & subwoofer
Price: Solo Bar \$2199,
Solo Sub \$1199

- + Upmarket soundbar & sub solution
- + HDMI hub, Dolby/DTS HD processing
- + Movies can go loud without loss of clarity
- Sub performs better wired than wireless
- Remote volume buttons

While soundbars as a breed have always had a mixed reception from our reviewers, there has been a recent evolution where serious hi-fi companies, seeing the success of the soundbar concept, have applied their best efforts to delivering something above the norm. B&W was an early participant, and more recently Arcam, most definitely a serious UK hi-fi company, has attempted a 'raising of the bar' with this Solo soundbar and Solo sub.

Equipment

Arcam's Solo Bar is a substantial unit, 110cm long (the website says 100cm, but it's wrong) by 13cm high and 11.5cm deep, though the space it takes up will depend on how you orientate it, remembering that Arcam specifies it as giving best performance when wall mounted, for which a bracket and clear instructions (including a drilling template) are provided. All its drivers face forward — twin four-inch cones on either side of the central section and a tweeter at each end. The frequency responses given for these

are odd (the woofers go higher than the tweeters, according to the specs) while there's a total of 100W of power specified at a half hi-fi 0.5% THD — 40W to each pair of woofers, 10W to each tweeter.

In connections terms this is a fully-featured unit, not one that just takes an optical output from your TV. Instead you use the Bar as your HDMI hub — it has four HDMI inputs and one HDMI out to your TV; this output has ARC support to play audio from other TV inputs (and from the TV's own tuner) back down the wire — if your TV proves compatible.

In addition there is one each of optical and coaxial digital inputs, one minijack analogue input, and also Bluetooth reception so you can stream music to it from a smart device or laptop — there is aptX support if your Android device is compatible. There is also CEC support for control signals via HDMI, including TV volume control.

Unusually there is also a wired subwoofer output, which means you can use the Bar with any subwoofer, not only with the Solo Sub provided here.

Indeed the Bar can operate with or without its optional wireless Solo Sub.

Arcam Solo

soundbar & subwoofers



Subwoofer settings

Arcam's subwoofer links wirelessly to the soundbar, but unlike most it offers full subwoofer controls and a wired input, so this is a unit that could be used with systems other than the Solo soundbar.



The wired input

It's worth trying the Arcam subwoofer with a cable connection instead of the wireless mode — we found quite a favourable variation in performance.

When so paired its performance is automatically tailored to hand the low stuff over to this tower of a subwoofer, some 43cm high and 32cm square, containing a 10-inch downfiring woofer and a quoted 300W of power within its braced MDF cabinet.

As a subwoofer for a soundbar it's unusual in a number of respects — particularly in having not only the usual wireless signal connection but also input sockets and filter controls so that it can be used with other small-speaker systems; come the day you choose to change your system, this subwoofer can be reused. The input sockets are RCA phono sockets at line level, with a three-position switch to invoke a low-pass filter for full-range signals, or none for pre-filtered LFE signals.

The third position for this switch is for the wireless connection, and when used with the Arcam Solo Bar in this way, connection is a simple sync process controlled from the Bar's menu system. You should still set the Sub's filters accordingly, however — Arcam recommends crossover Q at 1.1, crossover point at 90Hz, and volume to be set depending on the placement and the room, most likely between 7 and 9.

All this is particularly easy to achieve given Arcam's excellent instruction

manuals — one each for the Bar and the Sub, each supplied in full in printed form in the boxes. You'll regularly find us ranting about inadequate instructions or hard-to-find online guides; Arcam shows how it should be done.

Performance

We couldn't wall-mount the Solo Bar (given the impermanence of our reviewing life and the objections of the missus if we regularly punch holes in the wall), so we positioned it in front of our LG TV. It seems happy either leaning back or sitting upright to fire horizontally, and we could find no preferential advice either way in the literature, so we tried both positions during our listening, and settled on preferring the direct sound of horizontal firing.

In either orientation the Bar just avoided covering any of the picture, but it did obscure our TV's IR receiver, so we were pleased to find an IR repeater function enabled, even in standby — our TV remote worked just fine.

We spent a little time with the Solo Bar alone, before connecting the Sub, to see how it sounded. We gave it the benefit of the auto-set-up procedure, which uses a small microphone to analyse bursts of noise, adjusting EQ of the Arcam system to suit your room. The procedure worked smoothly, and the sound of the Bar was clear, strong and spacious, enjoyable listening in its own right, but audibly itching for bass to underpin the performance.



“Confirming the evolution of the soundbar, Arcam has created a high-quality pairing here, worthy of the company name...”

So out came the Sub. This is a surprisingly large unit, 43cm tall, yet unobtrusively modern in design, and it was a cinch to pair (we were using a Bar that had not previously been paired with this Sub), before adjusting its settings and doing a fresh burst of auto set-up.

Immediately the sonic balance was improved, if rather subtly so — the soundtrack to ‘Prometheus’ was not suddenly flooded with rumbling bass but was, rather, filled out to be given a larger scale. Switching the applied room EQ in and out showed that this process had indeed improved vocal intelligibility significantly, though the bass had a couple of dips in response and peaks around 125Hz and 160Hz. And when we switched to music for a more critical listen, we simply couldn’t get an agreeable and realistic balance, no matter what we did with the Sub’s settings.

The solution, slightly oddly, turned out to be running a wired connection between the bar and the Sub’s LFE input, resetting everything, then doing a third round of auto set-up bursts. The bass was then far more substantial, perceptually deeper for movies (it added suitable ominousness for ‘Prometheus’), and better balanced for music listening. So we highly recommend at least experimenting with this connection as an alternative to the wireless link.

Four 4-inch woofers and a pair of 25mm tweeters deliver sound from the Bar, backed by a quoted 100 watts of amplification. Another 300W of power drives the 10-inch bass driver in the sealed enclosure of the Solo Sub.

We tried also the app control, which requires connecting your smart device via Bluetooth — easy and neat enough, but the app only duplicated the useful little physical remote; its status readout saved looking at the Bar to check its screen but the app didn’t offer any significant extra functions or even make operation any easier.

What was clear throughout was the ability of the Bar and Sub to perform at high and full levels; this is the sign of a quality system, able to keep clarity and kick out the action. There is proper Dolby TrueHD and DTS-HD processing onboard, so given a proper PCM feed from Blu-ray, it fully separates the channels, further assisting its clarity, though not, thankfully, attempting any fake pseudo-surround trickery.

Music via Bluetooth (‘Stereo’ mode is the default here) could become a little forced at high volumes, but maintained grace and balance up to higher levels than most would use for casual listening. Stereo separation was good, too.

The Solo soundbar can be wall-mounted or placed directly on a surface. It seems happy either tilting upwards or pointing out at 90-degrees — choose whichever position puts your listening position most on-axis to its speaker array.

Gotta have an app! — the Arcam smartphone app allows touchscreen control of the Solo, but doesn’t add any additional useful functionality over the physical remote.



Conclusion

Confirming the evolution of the soundbar, Arcam has created a high-quality pairing here, worthy of the company name, though it’s certainly not cheap. Give or take a tweak, it delivered excellent movie sound and impressively enjoyable music as well, with the benefit of neatness for those not wishing to invest in a full hi-fi. *Jez Ford*

SPECS

Arcam Solo Bar and Solo Sub soundbar & subwoofer
\$2199 / \$1199

Inputs: 4 x HDMI, 1 x digital optical, 1 x digital coaxial, 1 x analogue minijack, Bluetooth

Outputs: 1 x HDMI (with ARC/CEC), sub out

Processing: Dolby TrueHD, DTS-HD

Soundbar drivers: 4 x 4-inch woofers, 2 x 25mm tweeters

Subwoofer driver: 10-inch, sealed enclosure

Quoted power: 100W (bar); 300W (subwoofer)

Bar dimensions (whd): 110 x 13 x 11cm

Sub dimensions (hwd): 43.5 x 32 x 32cm

Warranty: Two years

Contact: Sennheiser Australia

Telephone: 02 9561 0799

Web: www.arcam.com.au



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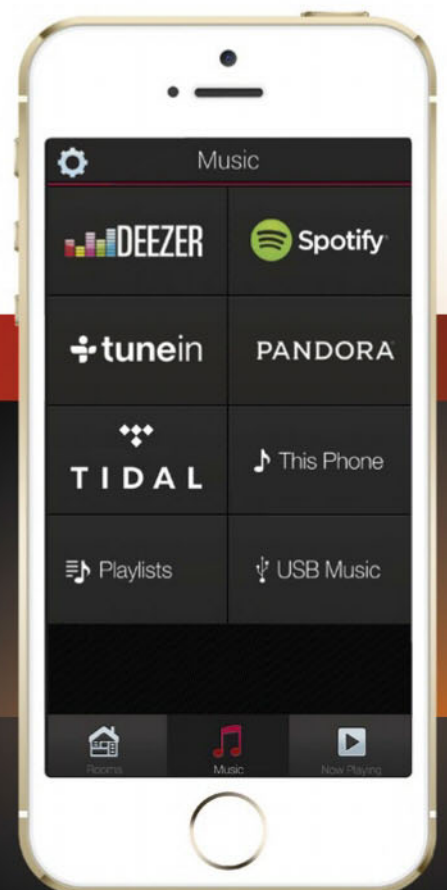
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ENJOY YOUR
MUSIC

Cambridge Audio TV5

speaker base with Bluetooth



Firing from Below

Cambridge Audio's TV sound solution sits under your TV, with big downward-firing speakers delivering enjoyably full bass.

SUMMARY

Cambridge Audio TV5

speaker base with Bluetooth
Price: \$649

- + Unobtrusive base speaker
- + Simple connections
- + Good sound especially when turned up

- Check size works with your TV

Well we do like a product you can set up in under five minutes. The big black box of the Cambridge Audio TV5 slipped easily under our TV; we plugged in its mains cable and an optical connection to the TV, and put the batteries in the remote. And turned on. The longest part of the process was spotting the quick start guide tucked away in a corner of the packaging. Not that we needed it.

While this TV5 doesn't perfectly fit in our group of upmarket soundbars, it certainly comes from an established hi-fi company of repute, and reveals a different path to enhancing your TV sound. Since the earliest days of the soundbar onslaught, we have registered our preference for a sound base over a sound bar. Bars may promise a neater solution than surround speakers all over your lounge, but they can still muck up your décor sitting in front of the TV, often with cables trailing from their

nether regions. A base like the TV5 sits under your TV with its connections firmly to the rear; it is far neater. The main effect is to raise your TV, in this case by about 10 centimetres, likely non-critical unless you've very carefully arranged for the centre of your screen to be at eye-height, which is the ideal.

Equipment

So the full dimensions here are 72.5 × 10 × 34cm — many of this year's TVs have feet at each end that will go over this (though check they're high enough), while pedestal designs will need their base to sit fully on the top — it is built to take 30kg of weight, "strong enough to support any TV that will fit on it", says the company.

Connections here are also nearly the simplest possible — two analogue inputs, and one digital input via optical. But the analogue inputs are really an either/or choice — they don't have separate selection buttons, and plugging something into the minijack socket will

Flipping the TV5 reveals the 6.5-inch bass woofers underneath — no subwoofer required. Keep a hard surface under this speaker base to let the sound from these downfiring drivers emerge at its best.



“Since the earliest days of the soundbar onslaught, we have registered our preference for a sound base over a soundbar...”

mute the RCA sockets. So it's really only one analogue input with two choices of socket. There's no HDMI here, so you keep everything connected to your TV and take all the sound from there. Less obviously apparent is that the TV5 can also receive via Bluetooth, so you can stream music direct from any smart device or laptop.

Use the analogue feed from your TV, if it has one, and you can continue using your TV's remote control for volume adjustments, though at the penalty of using what is probably a very low-cost audio output stage in your TV.

Use the optical input and the Cambridge will use its own DAC and audio circuits to deliver potentially better sound quality, but most TVs

keep their digital output fixed, so you'll then need to use the Cambridge remote for volume, or 'teach' the TV5 the commands from your TV remote. That is possible here, though as with all such learning systems you'll probably also trigger your TV's own speakers at the same time. (Turn them off if your TV allows this.)

It's worth remembering that some TVs and PVRs can also transmit their audio via Bluetooth, though a cable will usually give you better quality and higher reliability, especially given the potential lip-sync issues.

The TV5 includes a quoted 100W of internal amplification feeding a proudly stereo speaker system with none of your pseudo-surround nonsense — two 6.5-inch woofers fire down from the bottom of the cabinet (so we'd suggest you avoid having soft furnishings underneath the TV5, which might absorb the sound), with two rather small circular 57mm Balanced Mode Radiator

Rear porting

Don't shove the TV5 hard against a wall, since the rear ports need a bit of space to breathe — a certain amount of bass tuning is possible by varying this distance from the rear to the wall.

Analogue/digital outputs

This sound 'plinth' uses the simplest of connections — an analogue RCA pair and minijack (use either but not both) or an optical input from your TV. There's also Bluetooth available.

Solid cabinet construction

Cambridge Audio has used a composite wood cabinet — it needs to be solid not only to minimise vibration and distortion but to be strong enough to support “any TV that fits on it”.





“the higher we cranked it, the better the TV5 sounded, the more balanced the sound, and the more able to rock out it proved...”

(BMR) drivers firing forward at either end of the front panel. BMR drivers use both pistonic motion for lower frequencies and flat-panel surface excitation for higher frequencies.

Performance

You can see these two small BMR drivers by removing the front grille (as pictured above), which also then gives access to the buttons needed for learning your TV remote commands — Cambridge considers the instructions on the unit itself sufficient for this, which proved to be so, though without any hint as to what feedback the flashing light is supposed to give, you'll have no notion whether the learning process has actually worked until you try it out. (It did.) The TV5 auto-activates on receiving a signal, so powering it up wasn't necessary.

The supplied guide is also silent on the effects of the four EQ buttons on the remote, labelled 'TV', 'Music', 'Film' and 'Voice'. Which of these is flat, which emphasised? There is no hint, so suck them and see, but 'Movie' delivers the most bass, 'Music' a little less, 'TV' still less in order to raise the midrange presence in prominence, while 'Voice' makes everything relatively squashed and

boxy but does stripout lower midrange, thereby clarifying any voices that are difficult to discern because they have become overplummed or woofy. We settled on the 'Movie' setting and pretty much stayed there.

Initially we found the BMR radiators a little bright and abrasive when we turned on daytime TV, at least compared to the standmounts that routinely flank our screen. But we loaded up a DVD of *Rockwiz* (as we often do), cranked the level a little, and were soon enjoying a solid and substantial sound notable for significant bass — indeed the higher we cranked it, the better the TV5 sounded, the more balanced the sound, and the more able to rock out it proved. We ended the *Rockwiz* episode with a Martha Wainwright/Dan Kelly duet playing at the TV5's top volume, with amazingly impressive bass from a box so unobtrusive (indeed we tamed it back using the 'Music' EQ setting), a rich midrange and clear non-abrasive treble.

We here switched to Bluetooth and quickly paired our iPod touch to throw some tunes at what we would guess from the quality was AAC 256k streaming; Android users can also benefit from higher-quality aptX if their phones support it. Cambridge knows its hi-fi, and the circuits sound good, though there were a few holes in our listening room from the unusual speaker arrangement — real response from 30Hz upwards was impressive, though with a dip at 80Hz and a peak around 120Hz, which could cause bass on some tracks to become a little dominant. The sound was musical if not entirely balanced, which still counts as a decent result from a sound base.

If it can do music content this well, you can bet it can do movies — we loaded up *Gravity* and *Mission Impossible: Ghost Protocol*, while also sneaking an episode of *Game of Thrones*

into our review time. All were well handled, presented with dynamics and impact. There isn't the air-shifting power of a subwoofer here for the deepest lows, of course, so the Cambridge doesn't slam and rumble with the home cinema feel of some of the larger more expensive soundbar-sub combos in this issue, but for such an unobtrusive addition to your lounge, the Cambridge ably fulfills the brief of replacing your TV's thin-panel sound with something enormously more substantial. The explosion at the end of the *Ghost Protocol* credit sequence made us smile with its impact — big, solid and dynamic; it is a testament to the solid build quality Cambridge has implemented here.

Conclusion

At this price our only caveat, as with all base-style speakers, is that you should check the measurements will work with your TV. Otherwise we applaud both the simplicity and the performance here — the Cambridge Audio TV5 just does its job, and does it extremely well.

Jez Ford



SPECS

Cambridge Audio TV5 \$649

Drive units: 2 x 57mm Balanced Mode Radiators, 2 x 165mm (6.5-inch) woofers

Inputs: 1 x optical digital, 1 x analogue (choice of minijack or RCA phono), Bluetooth with aptX

Outputs: headphone 3.5mm headphone jack

Amplifier power output: 100W (no specs provided)

Dimensions (whd): 725 x 100 x 340mm

Contact: Synergy Audio

Telephone: 03 9459 7474

Web: www.synergyaudio.com

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Definitive Technology W Studio

soundbar, subwoofer & wireless multiroom system

'W' is for Wireless



Part of Definitive Technology's 'W' multiroom system, this soundbar and sub therefore bring all manner of streaming music as well as excellent movie sound.

SUMMARY

Definitive Technology

W Studio soundbar, subwoofer & wireless multiroom system
Price: \$1999

- + Excellent sound on movies and music
- + Part of a multiroom system
- + Versatile connections and control

- No ARC or lipsync adjustment

Two issues back we took a long look at Definitive Technology's wireless multiroom system. It's something along the lines of Sonos, forming a network of speaker units and music zones all around your home. There's wireless music streaming, and full control via smartphone or tablet (see panel). The speakers we reviewed then had strong sound performance — this is a company with an established expertise in loudspeakers. It was also very early in the soundbar arena with upmarket designs that could be driven from proper multichannel AV receivers. So it's no surprise that the Definitive Technology multiroom system includes a soundbar and wireless subwoofer solution, and our expectations were high for good performance.

Equipment

The 'W' Studio comes with its subwoofer all in the one entertainingly bonkers box, the two elements within this being triple-protected by polystyrene, plastic and cloth wrapping. They emerge in some glory, indeed, as they are beautiful

things. The subwoofer is an artistic study in cubes and squares, with a hidden DefTech-blue highlight in its downfiring port. The soundbar is a slim unit having a perfectly square cross-section terminated by lovely solid aluminium end-caps, the 110cm length covered with the company's usual stretched cloth, punctuated by the five controls shared by all the company's W wireless multiroom range (see panel).

The bar can be wallmounted, or placed straight on a surface, or raised slightly (to fit over a TV base, for example) using magnetic feet which reject attempts to sit them right under the aluminium end caps, but settle happily anywhere else convenient along its length. Should the bar happen to block your TV's IR receiver, you can use a supplied IR blaster on a cable from a rear minijack to relay your TV's remote commands.

Connections can be made in several ways to the W Studio. The best is to plug your sources into the bar via HDMI — there are three inputs and one output. Plugging your sources in



The “W” Collection

The **W Studio soundbar** and subwoofer is just one part of Definitive Technology’s wireless multiroom system, one of the most recent of the breed that has arrived to challenge the market dominance of Sonos.

The Definitive Technology family currently includes two sizes of wireless speakers — the long rectangular W9 and the smaller cubic W7 (pictured immediately above). Then there are two electronics units, the ‘W Adapt’ for streaming the Play-Fi services into an existing hi-fi system (above left), and the ‘W Amp’ as a just-add-speakers solution (above right). And finally there is this W Studio — one of the few soundbar options currently on offer in such systems, and one where, unlike the Sonos Playbar solution, the subwoofer is not optional — it is integral to the presentation of the W Studio.

Each element of the Definitive Technology system connects through your home network either by a wired Ethernet connection or via Wi-Fi (the W Studio is Wi-Fi only). Set-up is nicely simple — when plugged in, the first ‘W’ unit creates its own Wi-Fi hotspot, and you just use Definitive Technology’s special app downloaded to your smart device (iOS or Android), which leads you through entering your Wi-Fi password — note that these units are able to use either 2.4 or 5GHz Wi-Fi bands. There is likely to be a software update to be downloaded at this stage.

You then use the app to play your music from device or networked computers and NAS drives through one (or several) of your W units around the home. Definitive Technology uses the DTS Play-Fi system, which also provides access to several online music streaming services, and which can handle high-res audio files on your own network up to 192kHz (although it downsamples these to play at 48kHz).

While the app itself isn’t currently the richest visual experience compared with some rivals, this is likely to change through time as Play-Fi upgrades come. The all-essential audio quality is high throughout the system — we’ve previously reviewed the W9 and W7 speaker units (Feb/March issue) and both proved excellent wireless speakers, the \$649 W7 sounding great for its useful compact size, and the larger \$1099 W9 being simply one of the best wireless speakers we’ve ever heard.

this way will ensure the bar receives any Dolby Digital or DTS 5.1-channel surround soundtracks (it includes processing for both). Unusually for an HDMI-equipped soundbar, however, the HDMI output doesn’t support ARC (the Audio Return Channel), so if you want to hear any audio from the TV itself — from its own tuner, its smart TV sources or from anything else plugged into the television directly — you’ll also need to run an optical or analogue cable from TV to soundbar.

Otherwise you could just leave all your sources plugged into the television and take the audio out to the soundbar via optical or analogue line out. But even via optical, many TVs will strip surround information down to stereo, so you may lose spatial information if not actual sound quality unless you use the HDMI

plugging. (Note the HDMI sockets are 1.4a spec.)

Either way the Definitive Technology bar can learn the core commands from your TV remote control, so you can continue to use that instead of, or in addition to, the useful remote that comes with this system.

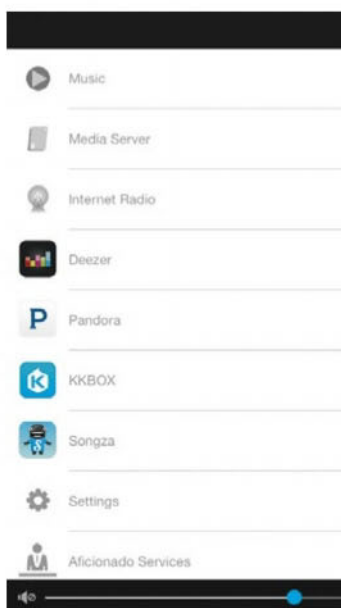
Performance

Set-up was a cinch, with the bar and subwoofer pairing instantly as they were powered up, and cable connections straightforward, hampered only by things getting fairly tight in the connection bay (see picture) once you have four HDMI cables snaking their way inside.

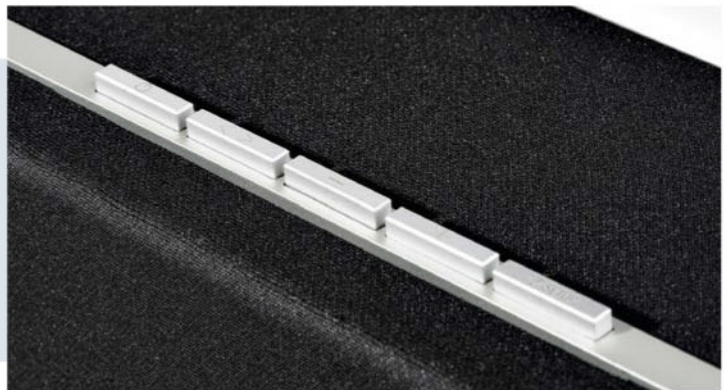
We also made the connection to our home Wi-Fi network using the Definitive Technology app for its multiroom system, upon which a firmware update was applied over the internet, taking only a few minutes. After that we were quickly streaming music across to the W Studio under control of our iPad.

Analogue/digital outputs

Use the W Studio as an HDMI hub — three inputs and one out to your TV. The HDMI output doesn’t support ARC, so also connect an optical or analogue cable to hear other sources connected to your TV, its own tuner and smart TV stations.



“It just worked, and delivered clear full audio whether for day-to-day TV down the optical cable or for full-on soundtracks from Blu-ray...”



You will need the physical remote control to make sure you're in the right sound 'mode', otherwise the W Studio can play tricks with your music. With the remote control you can choose either 'Movie' mode (the default) or 'Music' mode, but behind this in the menus you can set each of these with varying amounts of what Definitive Technology calls SSA (Solo Surround Array) Immersion. The defaults for this are quoted at +10 for Movie mode and +5 for Music, though after a reset the default on our sample was -10 for Music. We reset this to 0, hoping this might mean no messing with the sound (though the manual insists "There is no right setting"). In any case the effect did not seem extreme on music presentation — more useful was the separate control on the remote for bass, an excellent inclusion to tweak any material on which bass was either dominant or lacking; the centre point is clearly indicated by LEDs on the soundbar so it's easy to get back to its default central position.

As hoped, the W Studio does an impressive job of carrying a tune — we beamed stereo music from iPad and NAS drive, and there was a rare integration between subwoofer and soundbar holding together the frequency range; Leonard Cohen's deep vocal emerged as one piece rather than being pulled into bass and midrange elements; bass guitars were solid rather than stretched out or split. Multichannel music from Blu-ray was also impressively rendered, large and wide, its quality far above the achievements of more midrange soundbars. Sticking to 'Movie' mode and dropping the bass a few dB delivered a rich presentation of 'Goin' Your Way', the Sydney Opera House concert by Neil Finn and Paul Kelly, the sound supported by solid bass kick but no bloom.

With actual movies the separate 'centre' level control is also useful, to bring up dialogue without increasing

overall volume. (There's also a 'night' mode available under the on-screen menu.) When receiving genuine surround signals the drivers in the soundbar did a fine job of maximising its presentation of a 5.1-channel soundtrack through the three pairs of three-inch woofers and three 25mm aluminium dome tweeters. While they don't seem specially angled under that black cloth, the outer woofers appear to deliver surround information, the next two woofers play the main left and right channels, while the two centre drivers play the centre channel and thereby support strong dialogue. (This

arrangement was confirmed by the usefully channel-separated soundtrack of 'The Rocky Horror Picture Show'.) With stereo material all six woofers are used.

One possible issue for users — we could find no lipsync adjustment in the DefTech's menus; we didn't need it for TV audio sent via the optical cable to the bar, but it was certainly required for our Blu-ray player going through the bar to the TV. Since the TV can't bring the video forward in time, we had to rely

✓ Is it a chair? Is it a pinball machine? No, it's the unusual box which carries both the bar and sub components of the W Studio.



on our Oppo Blu-ray player to add up to 150ms audio delay to get things together properly. If your source can't adjust for lipsync, you could be stuck here.

One of the best recommendations we can offer overall here is that once we had finished testing and left the DefTech in our system, it just worked, and delivered clear full audio whether for day-to-day TV down the optical cable or for full-on soundtracks from Blu-ray — plus the bonus of Play-Fi streaming and the potential of working as part of a multiroom system.

Conclusion

Doubling up as an element of Definitive Technology's 'W' multiroom system and as a sophisticated soundbar and wireless sub solution, the W Studio is a powerful beast, rich in sound, clever in its control of the different sound elements. And a looker. Jez Ford



SPECS

Definitive Technology W Studio

\$1999

Inputs: 3 x HDMI, 1 x digital optical, 1 x analogue minijack, DTS Play-Fi via Wi-Fi

Outputs: 1 x HDMI, IR blaster out

Processing: Dolby Digital, DTS

Soundbar drivers: 3 x 25mm aluminium-dome tweeters; 6 x 3-inch mid-woofers

Subwoofer driver: 8-inch

Quoted power: 120W (bar); 200W (subwoofer)

Bar dimensions: 1092 x 83 x 84mm

Sub dimensions: 318 x 356 x 324mm

Warranty: 12 months

Contact: Advance Audio

Telephone: 02 9561 0799

Web: www.advanceaudio.com.au

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- Twin high definition digital tuner with Quad Recorder (Record 4 shows at once, and watch a fifth in playback)
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- Series Recording with Ad Skip - Never miss your favourite show
- LAN supported and Wireless connectivity via optional wireless dongle
- Access to YouTube, Facebook, Twitter, Weather and more



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LG LAS950M

soundbar & subwoofer

Full Flow



LG's top-of-the-line soundbar and subwoofer solution is also part of its Music Flow multiroom audio system. So that's a lot of options in this two-box solution.

SUMMARY

LG Electronics LAS950M

Music Flow soundbar and subwoofer

Price: \$1299

- + Very good audio performance for a soundbar
- + Attractive styling
- + Versatile with Music Flow abilities
- Doesn't seem to use several of the built-in speakers
- Confusing Audio Return Channel operation
- App and instructions somewhat obtuse

Our first thought when unpacking the company's LAS950M soundbar and subwoofer combo (also known as the HS9) was that LG has come quite a long way in recent years with the styling of its offerings. Both devices were elegantly understated with wraparound black grilles and clean, silvery tops. But equally interesting is that LG has come on in leaps and bounds with audio quality in its recent products, notably the Music Flow multiroom system, of which this soundbar can form a part. Let's see if they perform as well as they look.

Equipment

The system boasts a quoted 700 watts of power, of which 175W is for the subwoofer, and 75W apiece for each of the seven speakers within the bar. Two of those speakers are two-way — with a 25mm tweeter and a 75mm midrange. These are designed for left and right channel performance. At the centre is a 75mm full-range centre-channel speaker. Four other 75mm full-range speakers handle surround and surround rear. If you want to go for actual surround

sound, then you can pair two of LG's smaller Motion Flow speakers to act as wireless surround speakers.

Just to the right of centre, a display panel glows through the grille, showing input, track time and such.

The subwoofer communicates wirelessly with the soundbar, and the two units are pre-paired so no user interaction is required. LG doesn't specify the size of the drivers in the subwoofer. There was a bass reflex port on the rear.

The soundbar has three HDMI inputs, two optical inputs and one 3.5mm analogue stereo. It also supports Ethernet and dual-band Wi-Fi, plus Bluetooth, and the HDMI out supports the Audio Return Channel from a connected TV. The optical and analogue inputs are located kind of under the others (see opposite) so aren't easily accessible for ad hoc connections.

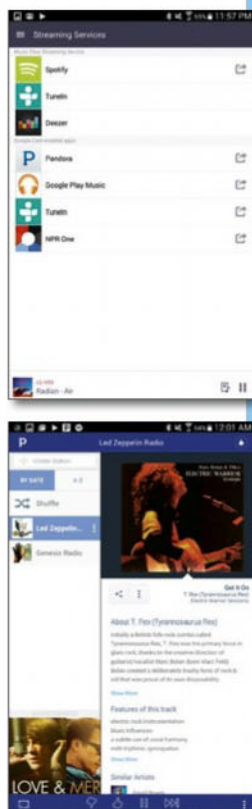
Bluetooth codec support appears to be limited to SBC. But music streaming support MP3, WMA, OGG, AAC (including iTunes style) and, losslessly, FLAC and WAV up to 24-bit/192kHz.

Going with the Flow

The Motion Flow app is extremely powerful, but presents a learning curve, since what you might want to do (adjust the volume, for example) is often several stabs of your touch-screen away. When I set it up it didn't look for the DLNA music available on my system, nor did it suggest that perhaps I ought to do so. So my 'Library' was empty until I managed to find a rather obscurely-titled option in the 'Settings' to enable some of my DLNA servers.

It also offers internet streaming services: Spotify, TuneIn, Deezer, Pandora, Google Play Music and NPR One. Spotify uses the Spotify Connect system (the soundbar connects directly to Spotify under control of your smart device) and requires a premium subscription.

The last four communicate using the Google Cast system (and future Cast-equipped apps should also work). I tried out Pandora and it worked well enough, although connection was very slow.



HDMI inputs & outputs

With three HDMI inputs and one output to your TV, the LG soundbar is designed to be a hub for your home entertainment devices.

IR blaster

If the soundbar covers your TV's infra-red receiver, you can plug the provided IR blaster into this socket and the soundbar will repeat your instructions to the TV.



Ethernet or Wi-Fi

You can connect to your network using dual-band Wi-Fi, but if you're considering high-res audio streaming, try to give the soundbar a wired Ethernet network connection.



Connections

Once you've connected your HDMI cables, it gets pretty tricky to make ad hoc connections to the optical or analogue inputs underneath.

Setting up

You can install the soundbar on a bench in front of the TV (an IR output and blaster is provided if the TV's infrared receptor is blocked; the unit will repeat the TV's remote codes). Or you can wall mount it, using included brackets.

You should install the LG Music Flow app on your iOS or Android device and use this to set up the unit. This is required, of course, to allow the app to control music streaming to it, but you can also set how the device gets audio from a connected TV: either via optical or via HDMI/ARC.

This process will also check whether the bar is using the most up-to-date firmware, and offer to update it if not. As delivered, there were two updates (apparently for two different parts of its operations). One of these was to enable Google Cast functionality.

The unit comes with an infrared remote control with a useful set of keys for easy operation. But you can also control a number of things via the app, including setting the input and the volume level, and adjusting the bass and treble or choosing from an audio EQ preset. There is also a set of discreet keys

on top of the bar for volume, power, input selection, and network connection functions. If you adjust something with the remote or the keys on the unit, the matching settings in the app update.

You can do useful things like group this soundbar with other of LG's Motion Flow speakers so that they all produce the same tune, or instead have different music streaming to individual other speakers or groups of them. And the speaker runs primarily in the DLNA space when it comes to network audio, so you can drive it using other apps.

I went for what would be a probably common set-up with this system: plugged into the ARC-supporting HDMI input of a latest-model LG TV, with a Blu-ray player and PVR plugged into a couple of its HDMI inputs.

Performance

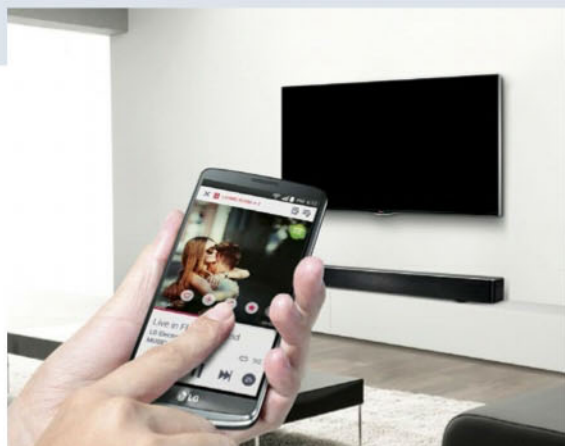
This is one nice sounding system — dynamic and balanced and smooth

sounding, remarkably so for a soundbar. That was after I reversed the many unfortunate settings which some previous user had left. Zeroing everything out gave this good tonal balance. Having 'Bass' turned up led to an overblown subwoofer that had to be turned way, way down, yet remained weirdly disconnected in sound. So go for '0' on everything. The crossover between subwoofer and soundbar seemed relatively high in frequency so it worked much better having the subwoofer close to the soundbar rather than off in a distant corner.

I ran through plenty of music, fed primarily from the network. While this sound certainly won't replace regular hi-fi loudspeakers, I could see it being used in the TV room very well indeed.

When I started drilling down into the system's capabilities, a few oddities. First, I played a Dolby TrueHD 7.1 test track to confirm my suspicions that

“You can do useful things like group this soundbar with other of LG’s Motion Flow speakers so that they all produce the same tune...”



◀ LG’s Music Flow app not only controls the soundbar, it enables all the streaming abilities of the company’s multiroom system, including Spotify Connect, internet radio, high-res network music streaming, and more.

each channel scored its own speaker. Er, wrong. Everything came from either or both of the left and right channel mid/tweeter combo, plus the subwoofer. No sound came from any of the five full-range drivers which you might imagine belonged to those other channels. Knowing that the soundbar supports Dolby Digital and DTS but not the high resolution lossless versions, perhaps my Blu-ray player was downconverting to stereo. So I put on a Dolby Digital 5.1 test DVD — with the same results. I switched my connection to optical rather than HDMI in case something weird was going on there. Same thing. No matter what I did, those five speakers with their headline 375W of power remained unused.

Then I tried the Audio Return Channel connection to the TV. ARC performance is often quite unpredictable, and varies depending on what equipment is plugged in. But, hey, given I had a brand-new 65-inch LG TV and LG’s top-of-the-line soundbar. What could go wrong?

No sound at all. I went through innumerable settings without managing to produce the slightest peep of TV sound from the soundbar.

I thought I’d put on some streamed music while I typed up that interesting result, so I selected ‘WiFi’ as the input. I got some AC/DC playing and turned my

attention to something else when... AC/DC stopped and the TV station’s sound started emerging from the soundbar. It showed an input of HDMI(ARC). When I switched back to LG TV input (as you’re supposed to for ARC), nothing. When I tried streaming music it would play a couple of seconds, then switch over to HDMI(ARC) and produce TV sound. In order to stream wirelessly I had to switch off the TV. This of course switched off the soundbar. I selected some music to stream, thinking it would switch the soundbar back on. All that happened was that the subwoofer produced the bass while the soundbar remained silent.

So I switched on the soundbar with the remote control, and all was fine. I switched on the TV and switched off its ARC function. Instead I chose the ‘wireless external speaker’ option from the TV’s menu and after one false start it connected and delivered its sound wirelessly to the soundbar and allowed network music streaming without getting confused by ARC.

Conclusion

You can see that we had some illogical operational issues here, and we’d strongly suggest that you leave ARC off. And we hope that LG might one day allow the soundbar to use the five unused drivers. But when it was all

up and running, we had none of the reservations we’ve expressed in the past regarding LG’s TV sound units. The LG HS9 soundbar offers surprisingly good sound, with powerful streaming features as part of LG’s Music Flow system, and of course the ability to deliver sound from your TV.

Stephen Dawson



SPECS

LG Electronics LAS950M \$1299

Tested with firmware: NB7.136.50430.C

Soundbar drivers: 2 x 25mm dome tweeters, 2 x 75mm midrange, 5 x 75mm treble/midrange

Quoted power: 7 x 75W (bar), 175W (sub)

Inputs: 3 x HDMI, 2 x optical digital audio, 1 x 3.5mm stereo analogue audio, Ethernet, Dual band WiFi, Bluetooth

Outputs: 1 x HDMI, IR blaster

Bar dimensions (whd): 1100 x 106 x 135mm

Bar weight (kg): 8.2kg

Sub dimensions (whd): 296 x 332 x 296mm

Sub weight (kg): 7.8

Warranty: One year

Contact: LG Electronics

Telephone: 1800 725 375

Web: www.lge.com.au



AWARD WINNING **EVOLUTION** RANGE FROM CREEK



THE AWARD WINNING Creek EVOLUTION 50A amplifier is slim, very stylish, and able to be hardware-upgraded through the use of software upgrades and differently-purposed modules. An ingenious new push-button design has been developed, offering excellent tactile feel and backlit optical indication of usable functions for optimum user-friendliness. Housed in a slim case with engraved front panel and solid control knobs, it is finished in either black or silver brushed aluminium.



Creek Evolution 50A
Stereo Amplifier of the Year
Under \$5,000



EVOLUTION 100A

The new EVOLUTION 100A amplifier maintains its family resemblance to the 50A being housed in a similar slim case with engraved front panel and solid metal control knobs. Power is assured by a massive 360W, low profile, toroidal mains transformer with multiple windings separating the power amp, pre-amp and digital circuitry, while Creek's long-standing design policy of paralleling several small capacitors in the power supply creates an ultra-high spec capacitor, with low inductance and ultra low impedance, improving filtering and helping to produce this amplifier's powerful and accurate sound despite its room-friendly dimensions.



EVOLUTION 50CD

The EVOLUTION 50CD DAC and CD player is part of a new generation of Creek products designed for digital connectivity and uncompromised flexibility. The EVOLUTION 50CD is a high-end DAC with built-in CD transport - not merely a CD player. It can handle a total of six digital sources including CD, and it has two digital outputs, plus a Creek RC bus. In keeping with the matching integrated amplifier, both balanced and unbalanced analogue outputs are offered for a maximum flexibility.

TCL U55H8800CDS

4K LED-LCD TV



Ahead of the Curve

The rise of the big Chinese TV manufacturers continues, as TCL shows it can do premium curved 4K LED-backlit design very nicely, thank you.

SUMMARY

TCL U55H8800CDS

4K LED-LCD TV

Price: \$2499

- + Excellent value for money
- + Good overall performance
- + Extremely low latency, great for gamers

- No FreeviewPlus
- Terrible 3D
- Buggy EPG

TCL Electronics, one of the biggest Chinese TV makers, is pushing hard into the fancier end of the market. The U55H8800CDS Ultra

High Definition TV is clear evidence of that — a handsomely-styled 55-inch curved-screen unit selling at a relatively modest \$2499.

Equipment

And we do mean handsome. It comes as one piece in the carton, with its speaker section doubling as a stand, conforming to the gentle curve of the screen. What looks to be a panel of real wood veneer is centred between two black speaker grilles. You could imagine this TV in the smoking room of a refined men's club.

The panel is tilted back very slightly, so it best suits placement on a fairly low cabinet. There are mounting points for the unit to be attached to a wall, but I'm not sure that it would look particularly pretty up there. It's a reasonably thick panel, perhaps 50mm for most of it, accommodating the LED backlight array, while the tops and sides of this television

have about 20mm of body between the edge of the picture and open space. The picture is, of course, rendered at 3840 by 2160 pixels on a screen with an actual diagonal of 138.7cm.

Curved screens started with OLED but have since come to be a marker of some premium LCD models. The curve here is mild — we'd generally prefer a flat screen (purists, we), but for those sitting more or less in front of the TV the curve here will have virtually no subjective effect on the visible geometry of the picture.

TCL has naively specified the contrast ratio of the TV at a rather lowly 4000:1. That's likely the native performance of the panel before any fancy processing is performed. As we'll see, that much understates the effective performance.

The audio section is called a "harman/kardon Tuned Sound System". There are an uncertain number of front-firing speakers, plus a pair of 75mm upwards-firing woofers in the base/stand behind the panel.

There are four HDMI inputs, with support for 4K up to 60Hz, and HDCP



The smarts

The smart features on this TCL are divided into two sections. There are a bunch of apps. And there is 'Go Live'. This provides lots of streaming video channels. Many are newsy ones and many are from Asia. There were more than 350 of them to choose from when I reviewed the unit.

As for apps, there was YouTube, Deezer, a web browser and 'Media Center' (see main text) pre-installed. And lots more available. But let's be clear. While Android may be running the show, TCL's skin keeps a firm hand on things. There isn't an obvious way to get into the native Android interface, so what you can install is what TCL allows you to. There are a bunch of games, TED talks and SBS OnDemand and ABC iView, Google Music and some education stuff. There were no apps for Netflix or Quickflix or Bigpond Movies, so you'll need to 'send' those to the TV somehow — an HDMI connection from a computer or Netflix-compatible Blu-ray player, or perhaps using a Google ChromeCast served from an Android device or Chrome browser on your laptop.

2.2 support for whatever commercial 4K sources may be thrown at us. There are good old-fashioned RCA sockets for the component video input and matching audio. Analogue composite video plus audio are catered for with both inputs and outputs via adaptor cables. There is also optical digital audio output and a 3.5mm analogue headphone socket.

Both USB sockets feature blue colour tongues, but don't be fooled, only one of them is USB 3.0. These can be used for playing back media, adding a camera for Skype, or adding storage for the PVR function for TV.

There's an Ethernet connection (oddly this is on the back, so requires the insertion of cable perpendicularly to the panel) and dual-band Wi-Fi for the network functions.

The remote control is dual function. Most of it operates as a conventional IR unit, but there are also 'mouse' and voice keys. The mouse key produces a pointer on the screen, which is useful for the smart functions.

The TV also supports 3D, using lightweight active glasses powered by a single CR2025 cell. One set is provided with the TV.

The smart features are powered by Android. A quad-core CPU and quad-core GPU

(Graphics Processing Unit) provide snappy performance of these features.

Performance

Of course there's a set-up wizard. This worked nicely, and the only surprise was that in the country selection section, the only choices were Australia and Algeria. Network connection was available in both 2.4GHz and 5GHz bands. The TV successfully captured all my local free-to-air TV stations. You can set the repeats to 'Skip' so they don't appear in the EPG or the channel list.

Speaking of EPG, the TV does not support FreeviewPlus, and the 'Guide' seemed quite slow and was a touch clunky. It had several tabs for presentation, and one of them displayed thumbnail images of the various TV programs. It turned out that this was not the conventional broadcast free-to-air EPG, but an app called 'Guide ON' which seemed to draw much of its content from the internet. It could be switched off, letting you use the regular EPG. This was much snappier, but in the review TV had a couple of problems. The 'Skipped' channels appeared in it, and it got confused with the SBS radio stations, filling their entries with data from subsequent TV stations and putting the whole list out of kilter. This kind of thing



Connections

This is a well-connected television, with four HDMI inputs but also analogue ins and outs using adaptor cables into the small minijacks sockets on this side-facing panel.

Audio outputs

Many TVs these days are providing only optical audio output, which can limit system connections. The TCL has optical but also analogue line-level and headphone outputs.

Networking

This TCL is a smart TV, and offers networking via a choice of dual-band Wi-Fi or the wired Ethernet connection.

Back panel

This separate back-facing panel has a set of composite video and audio inputs, plus the Ethernet and headphone connections.



can happen with a new TV model; expect a firmware upgrade to appear in due course to fix this programming error. Perhaps when they fix this, they can also have the TV retain the EPG data when it is switched off, so it's ready for presentation next time you use the TV. In the meantime, you can revert to the 'Guide ON' app.

The default settings, as with many TVs, include having a stack of sharpness applied to the picture. This produced an unpleasant harshness, which was easily dealt with by winding it back to zero.

On the other hand, the TV deals with overscan in the best possible way. It has a specific overscan switch in the picture menu. This defaults to off when handling HD or UHD content — including free-to-air 1080i HD TV stations. But for 720p HD or SD stations it's switched on. SD broadcasts frequently include irritating codes on the top one or two lines, so this is the best default, but you can turn it off if you wish to see the lot.

The TV also starts up with its 'Motion Enhancement' in the 'Middle' position. There are also 'High' and 'Low' and 'Customer' (sic) settings. Both the top two produced extremely smooth motion on my most juddery test clips, but also delivered significant levels of picture distortion. I found it difficult to see the difference between the 'Low' and 'Off' settings. 'Customer' lets you tweak the level of judder control.

The standard colour settings were good, as were the contrast and brightness settings. The latter two properly spread the black-white scale evenly across the brightness spectrum. There was a very slight pink tinge on some of the almost full-white shades of the test pattern, but I can't say that this was at all evident in use, even with black-and-white viewing material.

Running a few test pictures confirmed that the TV implements an array of individually controllable LEDs for backlighting. The local brightness control was extremely effective with room lights on. In a darkened room, it was clear that the back lights had not been programmed to turn all the way down to zero output, so there was always some back light glow. On a full black image the result was a bit of mottling from back light leakage. Nonetheless, black levels were respectable, the localisation was pretty good, and if you are setting up for an evening of darkened-room watching you can turn down the back light level, deepening the blacks further.

The deinterlacing of 1080i/50 and 576i/50 source content was motion adaptive and largely adequate, although inclined to flip over into video mode a little too easily. (I'd suggest using a Blu-ray player with good deinterlacing.) I'd be happy enough with feeding a set-top box's output into this unit in native format.

Test Ultra High Definition material, delivered via USB (including HEVC H.265 content) and 2160p/60 supplied via HDMI worked perfectly, and beautifully. It had me glancing over at the thousand Blu-ray discs on my shelves, wondering how many of them I'm going



◀ The TV's internal audio is tuned by Harman Kardon, and performed well for a TV, assisted by these two upfiring 75mm woofers at the rear.

to stutter, suggesting that the network connection wasn't fast enough, even with a wired Ethernet connection.

The Harman/Kardon-tuned audio was very good for

a TV. There was a bit of upper midrange emphasis on music, and of course no really deep bass. But there was a good hint of upper bass and fine clarity at surprisingly high levels, for a TV.

The 3D performance was pretty terrible. There was stacks of crosstalk.

The TV appears to do something quite rare: it supports auto-lipsync via HDMI. The timing chirp of the AV sync test clip emerged from the loudspeakers at the exact instant that the sweeping arm hit top dead centre. There was something even stranger: you may not even want to use this lipsync feature because the TV is so very fast. The processing delay was just 38 milliseconds. That's with the standard picture settings, including the motion smoother switched on. And it's about one quarter of the delay of most UHD TVs. We wonder how they do it.

But if you're really keen on gaming, go into the Picture, Advanced Settings submenu and switch on Game Mode. That reduced the delay further, to something under 20 milliseconds. Any games involving reflexes would be far more playable on this TV than any other 4K TV we've yet reviewed.

See the 'Smarts' panel for details of apps and the interesting and extensive 'GoLive' channels which TCL provides via the internet.

The 'Media Center' app is for playing recordings made with the TV's PVR functions, plus music, photos and videos from USB media or DLNA servers on your network (choose 'Share&See' for that). Photos were rendered at full 4K resolution, but the colour handling was 4:2:0 rather than 4:4:4 so some colour resolution was lost. Nonetheless, your high-res jpegs are going to look very fine indeed on this TV with just about 8MP resolution on display.

Music-wise, the unit happily played MP3, iTunes-style AAC and FLACs up to 96kHz, but not Apple Lossless. It streamed all the kinds of video I had available, including 4K. But while 4K from USB worked smoothly, over the network even 50Mbps material tended

Conclusion

So there you have it: curved UHD screen, very good TV performance, UHD both for now and the future, and brilliant performance for gamers. For \$2500. That's impressive. *Stephen Dawson*



SPECS

TCL U55H8800CDS 4K TV \$2499

Tested with firmware: V8-NT67K01-LF1V148

Display technology: Curved LED/LCD panel

Screen size: 138.7cm

Native aspect ratio: 16:9

Native resolution: 3,840 x 2,160

Brightness: Not stated

Contrast ratio: 4000:1

Inputs: 4 x HDMI 2.0, 1 x component video, 1 x composite video, 2 x stereo audio, 1 x USB 3.0, 1 x USB 2.0, 1 x Ethernet, WiFi, 1 x aerial

Outputs: 1 x 3.5mm headphone, 1 x optical digital audio, 1 x composite video, 1 x stereo audio

Audio: Harman Kardon tuned sound system (details not stated)

Included accessories: Integrated table top stand, IR/RF remote control, analogue expansion cables, 2 x 3D eyewear

Energy Rating label: 4 Stars, 392kWh per year

Dimensions (whd): 1245 x 790 x 209mm

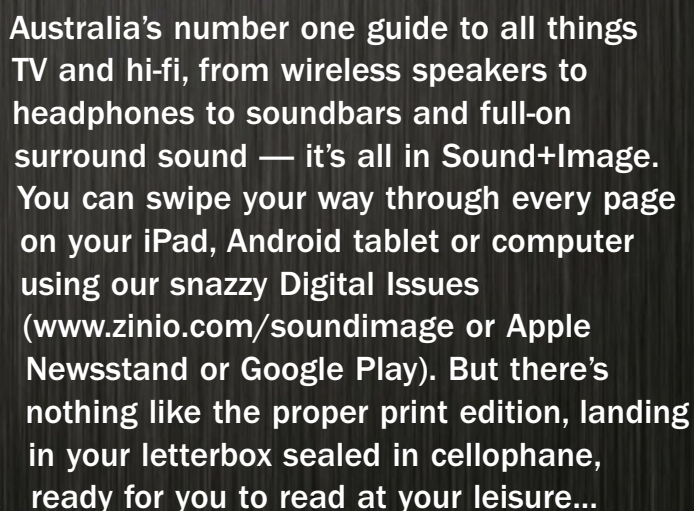
Weight: 34kg

Warranty: Three years

Contact: TCL Electronics Australia Pty Ltd

Telephone: 03 8541 4666

Web: www.tclelectronics.com.au



INCLUDES TWO ISSUES OF 'BEST BUYS AUDIO & AV' EACH YEAR

MAA/2805



Bush Heritage II Connect
AV receiver

Radio Active

No mere passive radio receiver, this Bush offers multiple paths to music, connecting and streaming, even working as a full multiroom system.

SUMMARY

Bush Heritage II Connect

DAB+ radio with Wi-Fi, internet radio & multiroom
Price: \$499

- + Excellent ease of use from device or app
- + All the functions of a full multiroom offering
- + Rich round radio sound
- Network streaming not Mac or high-res friendly

A new digital radio from Bush Australia — we allocated a page for this in our magazine, thinking that should about cover it. Not even close! Because on closer inspection, this is no mere digital radio. It is so loaded with additional abilities that we reckon the Bush Heritage II Connect qualifies as a new entry in the ranks of multiroom wireless systems to rival the likes of Sonos, HEOS, Bose SoundTouch and the rest. And it is an entirely Australian product and project. Even more impressively, it is rather brilliant.

Equipment

In brief, the Bush Heritage II Connect is a DAB+ radio with FM, Wi-Fi, Bluetooth, internet radio, Spotify Connect and multiroom abilities. With its many available presets you can use it like a simple household radio, selecting digital radio stations, FM or internet radio stations straight from the unit itself. Or you can whip out your smart device of choice and stream music via

Bluetooth, or via Spotify Connect if you have a subscription. Or use the free iOS/Android app to play music stored on your network, set up a multiroom system, or operate all the other functions from the comfort of your couch instead of by pressing buttons on the radio itself.

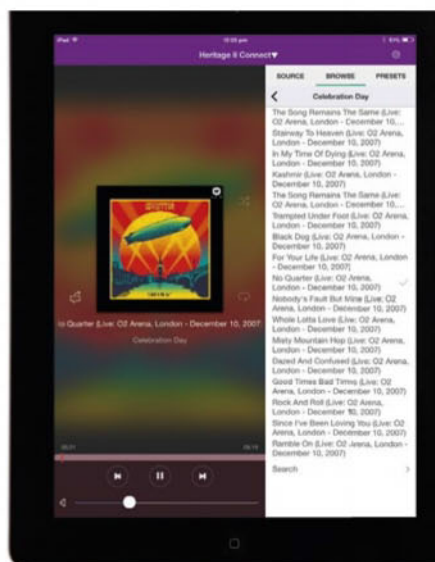
So you might call it a 'radio', but it's really a wireless multiroom speaker which has an advantage over most others of that breed by also being a 'radio'. It achieves this by basing its smarts around Frontier Silicon's UNDOK multiroom platform, which has the potential to combine not only multiple Bush units (a smaller portable is in the pipeline we gather) but also devices from different manufacturers on the same multiroom platform, much as is hoped for two other third-party multiroom platforms, the Qualcomm AllPlay used in Panasonic's multiroom audio products and the DTS PlayFi used by Definitive Technology. Given Frontier Silicon's record in getting chipsets into previous generations of streaming internet radios, we'd say UNDOK's longterm prospects are good.



UNDOK multiroom

The secret weapon within the Bush is the platform it uses to do most of the networking stuff — UNDOK. This is the first UNDOK-equipped device we've seen — its creators Frontier Silicon only announced it in April, so kudos to Bush Australia for such rapid implementation. The app which runs the Heritage II Connect is an unskinned version of Frontier's UNDOK app, perhaps the best we've seen from a third-party platform provider — slick, attractive and on the whole highly effective. Although not used in this Bush device, UNDOK also supports Apple AirPlay streaming (which would have helped Mac users to stream iTunes collections to this Bush) and multiroom playback from USB.

Being a third-party platform, UNDOK allows this Bush to grow into a multiroom system including not only other Bush UNDOK products, but also UNDOK products from other manufacturers. Given Frontier Silicon's previous widespread and successful implementation in digital radios and connected speakers (Sony, Philips, Pure, Panasonic, Roberts, Grundig, Bose, Bang & Olufsen among many many others), we think that's a potentially huge family of products in the future, even though at present the list has few major players (Argon, Goodmans, Hama, Peaq, Pinell, Revo, Roberts, Ruark, TechniSat and Tiny Audio). Interestingly, some existing devices that use Frontier's Venice 6.5 modules will also receive firmware upgrades to support UNDOK — so you may already own an UNDOK device!



But that's for the future — how does the Heritage II Connect stand on its own and connect with its own kin?

It's a good-sized box — 32cm wide by 17cm high and 15cm deep (note that it needs 22cm of shelf depth given a protruding mains connector, and you've got a 70cm telescopic aerial to accommodate somehow).

It comes in two colours. Bush is proud of its real-wood laminate version (no two radios exactly the same because of the real wood grain), and the light walnut veneer is certainly impeccably finished and edged. But we rather fell in love with the clean looks of the cream version, which will suit minimalist décors and kitchen areas. The rest of the radio is equally solidly constructed, the strong steel front grille bevelled back stylishly and adorned by the classic Bush logo. Overall the style is not as retro as the previous Heritage radio, which was based closely on a 1958 Bush original, but the buttonry is much the same, with eight big press buttons and twin push-to-select knobs below, flanking a good sized and well designed display (its content style displaying all the hallmarks of earlier Frontier Silicon devices). So in its looks, the Heritage II Connect is, as its abilities might demand, a modern industrial remake of a classic design.

The back is simpler, housing the antenna and socketry including a minijack headphone output, a minijack auxiliary input (which can be shared in multiroom mode), the adaptor port and a USB-B socket which is *not*, sadly for computer USB playback, just an update

port — though you can update the firmware more easily over the internet. (Our review unit required none.)

Performance

Networking products are often less than a joy to set up, but we had the Bush connected to the network and tuned into digital radio in a matter of minutes — assisted perhaps by our familiarity with Frontier Silicon's connection methods. If your home Wi-Fi router has WPS you can connect by the push button method; if you wish to enter your network password you pick your network from the list on the front panel display (2.4 and 5GHz are supported), ignore the promising 'PIN' setting option and select instead 'Skip WPS'. Then enter your password using the fairly fast knob-rotate-through-alphabet method. Ping, connected, no problem.

But before investigating its app and networking features, let's see how well it works as a simple radio. Does it pass the Granny test?

You use the Mode button to select source — DAB+ radio, FM, Bluetooth, Aux In, Internet Radio, Music Player (for network-stored music), and Spotify Connect. This last is an unusual dedicated input, as Spotify Connect usually just takes over your device, but for the same reason it is then easily overlooked, so we like this implementation.

INPUTS & OUTPUTS

With most signals arriving either through the broadcast airwaves or Wi-Fi network connection, there's just a minijack auxiliary input and a headphone output on the back panel.

GIVE IT SPACE

The Bush is a sizeable 'radio', and remember that for DAB+ and FM radio broadcasts you'll need to extend the telescopic aerial up to 70cm.



Selecting DAB+ radio for the first time will trigger a scan of your airwaves for digital stations — we got 59 of them in our Sydney HQ. Pressing the 'Menu' button gives you a contextual menu for DAB, with all the necessary pruning and scanning functions, plus a useful choice of station ordering, and even DRC, which is a dynamic range compression channel which allows broadcasters to transmit uncompressed audio then have listeners select the level of compression required (high in a car, low in the home, say). A great idea, especially for classical music listeners, but sadly nobody broadcasts a DRC channel — BBC Radios 3 and 4 once did in the UK, but it was never implemented in Australia.

Once set up, the radio's left knob is the volume (it also turns the radio on and off by pushing it), the right knob shuttles through the station list. Couldn't be easier. The setting of presets from the front knobs involves pressing and holding... easy enough, but even easier using the app, as we were shortly to discover. And crucially, when you turn the radio on and off, it reloads your previously-listened station. So that's one-button turn-on and a big knob for volume control — we reckon that's super granny-friendly!

The sound from the Bush is a classic big radio sound. From this size of cabinet a good round and rich bass is delivered, while the treble performance exceeds the traditional softness of radio sound, with plenty of zing up top — enough, indeed, that we found this treble clarity exposed the slightly insistent high frequencies of digital radio when heard close up, a mere metre away on a study desk, for example, and could remain a little fizzy even with a little distance introduced between listener and radio. We connected via Bluetooth from our iPad touch (devices supporting NFC can simply tap-to-pair) and found that things were better, but still sharp enough to benefit from an off-axis listening position. We best enjoyed the Heritage's default EQ setting this way, taming the treble but keeping it close to enjoy the wonderful richness.

But of course with the smarts of the UNDOK app, you can play with the internal EQ settings. So we fired up that app.

The UNDOK app

We used UNDOK on iOS, where it has separate iPad and iPhone versions, the iPad version rotating smoothly to work in landscape mode. We went straight to EQ, and found the unit in 'Normal' mode. Switching to 'Flat' showed that the treble tizz was created by the EQ; it disappears immediately in 'Flat' mode, though unfortunately so does the nice rich bass; going 'Flat' made things rather more boxy in the lower mids. None of the eight options quite offered the bass without the treble, even when we set our own Custom EQ, adding some bass but keeping the treble in check. We settled on leaving it 'Normal' when in casual operation and 'Flat' if we were listening close-up. In both these scenarios, the Heritage sounded highly enjoyable for long-term listening.

The Music Player section allows browsing of networked music via UPnP/DLNA. The instruction manual online mentions only AAC, MP3 and WMA support, and says it is best for "a suitable UPnP server system such as a PC with Windows Media Player 10 or later", and a music library that is "well-tagged". You'd certainly need some extra DLNA server software to stream from a Mac.

But the manual underplays its formats a little. We browsed to a WD NAS drive and were able to play Apple Lossless up to 16-bit/44.1kHz, and FLACs up to 16-bit/48kHz. Any higher bit-rate in these formats were attempted, the information loading and the file buffering, but never delivering. So high-res audio seems not to be part of either UNDOK or the Bush implementation of it, a shame if you're collecting in those formats. Nor is there WAV, AIFF or DSD support. Of course, you might not expect that in a 'radio'! But as a wireless multiroom system, it must be noted as a missing feature, and the Music Library option as a limited option.

But for the other sources — digital radio, FM radio, Spotify, and general Bluetooth

use — everything was great. And for the long lists of internet radio and podcasts, the abilities to scroll through long lists is a level of convenience beyond what can be achieved from the front panel alone (there seemed to be no text search available, but you can search and set up favourites on Frontier Silicon's website).

All these, and the auxiliary input, can be thrown from one to another Heritage II Connects, or to a whole house of them, and eventually to other Bush UNDOK devices and those from other brands. (We have seen a demonstration of this, which worked impressively seamlessly even under the perils of our office Wi-Fi, but since we were left with only one unit to review, we haven't done multiroom testing ourselves.)

Currently the two local radio sources, DAB+ and FM, can't be shared via multiroom, but we gather DAB+ should join the sharable group in an imminent firmware update.

If you're looking to build a multiroom system, one useful element would be a simple receiver to squirt the UNDOK abilities into an existing high-quality hi-fi. There's none here (unless you run the headphone output in), but if the UNDOK platform takes off as we expect, some company somewhere will surely oblige with one of these soon enough.

Conclusion

Unexpectedly powerful is this 'radio', given its app control of DAB+, FM and internet radio, limited UPnP network music streaming, Spotify Connect compatibility, Bluetooth and an auxiliary input, plus potential multiroom growth for most of those sources, and a lovely end unit for playback which makes a good noise and has granny-friendly operation. And it's all put together by the team at Bush Australia. Ladies and gentlemen, we confess ourselves mightily impressed with the Heritage II Connect.

Jez Ford



SPECS

Bush Heritage II Connect \$499

Radio: DAB+, FM, internet radio

DLNA streaming: MP3, AAC, WMA, FLAC to 16/48, ALAC to 16/48

Inputs: 1 x minijack auxiliary, Bluetooth

Outputs: minijack headphone

Dimensions (w/h/d): 320mm x 160mm x 165mm

Weight: 3.1kg

Warranty: One year

Contact: Bush Australia

Web: www.bushaustralia.com.au



Pure Pop Midi/Maxi
digital radio/streaming speakers

Pick of the Pops

Pure delivers some top tech, but sadly it comes with thin sound.

SUMMARY

Pure Midi / Maxi
Digital/FM radio + Bluetooth
Prices: Midi \$169/\$179
(without/with Bluetooth,
Maxi \$229)

+ Neat design & tech
+ Great combo of DAB+/
FM with Bluetooth

- Thin sound

www.pure.com/au

Two neat units from digital radio guru Pure, each capable of receiving DAB+ digital radio, FM radio, plus Bluetooth streaming from your smart device of choice, and a minijack auxiliary input. That's a pretty good combo, and Pure's tech is impeccable — the wonderful wide white knob on top does 'pop' up (flush when in standby, raised when in operation), controlling volume in all modes except Bluetooth, where your smart device is in command. And the controls are intuitive — a set of five preset buttons on top to access 10 favourite stations on each waveband, and a trio of previous/next and select buttons for moving between the stations (58 digital stations we could receive in our Sydney HQ when the Pops did their initial automatic scan). This trio of buttons is just a little inaccessible behind the raised knob on the smaller Pop Midi (17 × 9 × 10cm) but gains from the extra space on the Pop Maxi (18.5 × 17 × 10cm); remember also that both need significant extra height for their telescopic aerial in DAB+ and FM modes. An even smaller Pop Mini (14 × 9 × 10cm) is also available. Note that you can use four AA

batteries or Pure's rechargeable ChargePak to use either of these units as a portable.

But for our money the sound was very thin, weightless and quite boxy, with no bass to speak of from the single three-inch full-range driver of the mono Midi, and little more from the twin three-inchers of the stereo Maxi. We found EQ among the menus and punched the bass up to its maximum, which added a little body at the expense of clarity. For comparison we fired up a JBL Micro Wireless speaker alongside the Pop Midi, and the tiny JBL puck was far preferable in tone, with more clarity, less boxiness and with more sense of a tonal underpinning, if still not exactly real bass.

The Pops' menus are well stocked with clock, timer, alarm and backlight settings (perhaps don't select the 'update software' option, as this threw each into a permanent state of 'Waiting for PC Wizard' apparently only exitable by yanking the plug).

So there's a mismatch here — Pure has delivered some top tech and excellent ergonomics of design, super simple to use, but terminating in an audio system which just too lightweight for our tastes at this price. *Jez Ford*

No Speakers. No Screen.

Is this the future?
As we see generational
change in consumers,
Derek Powell
examines the
unthinkable —
might speakers and
screens one day
disappear altogether?

We've seen disruptive technologies like the internet swiftly and comprehensively change the way we work and interact. The worlds of sound and image have already been transformed by digital — but is the real revolution yet to come?

The first century of recorded entertainment saw a steady progression in technology, driven by a quest for quality. Wax cylinders were replaced by shellac, then vinyl and CDs; FM supplanted AM radio; SD PAL succumbed to digital HD, and so forth.

This new century has seen a change. Instead of a dedication to increasing the quality of our entertainment, today's technology has a relentless focus on increasing its availability. Downloads replace physical media; internet delivery supplants broadcast; wires succumb to wireless. Quality is no longer the driver, as ever more compression is applied to squirt sounds and images through constricted channels. The trade-off is the ability to enjoy your music and movies anywhere, any time. There's a whole generation of consumers born into the internet age who know nothing else.

This trade-off is not good or bad *per se*, but it is pervasive. And it has consequences. Some ways to

consume entertainment can be squeezed out and disappear — remember video rental stores? The same thing may be in sight for broadcast and even cable TV with the relentless rise of the internet.

But it's not just delivery that is undergoing generational change. There are signs that the hardware we use to watch and listen to our movies and music may be undergoing a radical transformation too.

Beyond the PC

A couple of recent and seemingly unrelated technology stories got me thinking about a possible future for our consumption of entertainment. The first was a vision of the future from Microsoft that seemed initially bizarre, but ultimately logical.

At this year's Microsoft developer conference, Joe Belfiore (corporate VP operating systems) revealed what you might assume was unthinkable for Microsoft — a future without the PC!

In a demo of Continuum, a key Windows 10 feature, he left behind both desktop and laptop PCs, plugging his phone directly into a simple monitor, keyboard and mouse, and jumped straight into Office.

The end game for Microsoft, of course, is to have Windows everywhere — not just (or crucially maybe not even) on a PC. The blogosphere lit up with speculation on what this means for the hardware world. David Pierce, writing in *Wired*, put it succinctly: "What if you only had one device — probably a phone — and just plugged in whatever you need? Plug in a big screen and keyboard [or] if you want to watch a movie — stick it in your VR goggles and watch away."

Of course, no sooner do we discuss the future than we find it's already here. Samsung has already patented a smartphone dock that looks like a laptop — the phone slips between the keyboard and monitor and transforms into a PC.



Above left: Microsoft Continuum sees a smartphone plug into screen and keyboard for a PC without a PC. **Above right:** RG Lab, a special R&D area set up at the French Open site, delivers an immersive 360-degree view of the tennis thanks to an alliance between France Télévisions and Intel.

perfectly content to listen with earbuds and headphones — for many of them a future without larger speakers may be a natural progression. And this solo inclination may extend to viewing preferences as well.

It may seem callous to say it, but already the traditional bigscreen TV is struggling in the market. Having comprehensively failed to provide anything new with the incursion into 3D, manufacturers are locked in a battle for image size that is relentlessly driving down margins. Meanwhile, zooming up on the inside is a potential disruptor that plugs right in to the next-generation lifestyle and their phones — goggles.

Had a good laugh? OK, now let's just see if that really is as crazy as it sounds.

Goggles, with or without the promise of Virtual Reality (VR), are storming the market. From Zuckerberg's two-billion-dollar bet on Oculus Rift all the way to Google's giveaway Cardboard smartphone cradle, everyone sees goggles as a future technology with astonishing promise. If we accept that the phone may evolve to replace the PC then there are some key advantages that might see the head-mounted display outcompete the conventional screen.

First, every advance in screen technology, from quantum dots to OLED, can instantly be transferred to a headset (or phone) display. Head-mounted displays

provide a technology platform that's theoretically capable of delivering 2D, 3D or virtual reality images at 2K, 4K or a zillion-K resolution in any apparent image size. From gaming to movies to sports — this is happening right now. The recent French Open Tennis was broadcast not just in HiDef and UHD but also in 360-degree full-immersion mode for users of Samsung Gear VR or Google Cardboard.

Significantly (at least for manufacturers), without the need for a large built-in screen, your new 'smartphone' could easily shrink to wristwatch size or even smaller — opening the way for a continuing cycle of technology replacement.

Of course there are valid objections to head-mounted screens as a replacement for

the familiar wall-mounted LCD, but very few that can't be addressed in time. In the home, at events or in any social situation, there's nothing to prevent people tuning into the same stream and having what would be literally their own individual view of the same event or movie. Wearing goggles on public transport would see you falling over things or being unaware of approaching danger, but some version of the now dormant Google Glass (perhaps with variable transparency) would be a clear option.

Finally, consider that the drift to personal displays and a move away from fixed screens and speakers could be driven by the third world. Already we have seen how some parts of African, Asian and Pacific countries are bypassing development of a wired electricity grid by moving straight to domestic solar installations. Similarly, huge territories are forsaking the infrastructure for wired telephones and internet and moving straight to mobile communication and data. In much of the third world mobile personal entertainment might well become the norm — and provide a mega-market to drive the world's industries further and faster than Western consumers.

So could speakers and screens disappear everywhere? While possible, I'd have to concede that a total migration to the personal sphere isn't really likely. What is more probable, though, is that dedicated speakers and large screens will become more of a commercial product. Domestically, it may become rare to find wall-sized TVs and stand-alone speakers in the living room. Visitors to your home may wonder why the kids are staring into space and laughing at nothing — until they turn on their Bluetooth and tune in to the Wi-Fi.

I know it's a brash move to predict the extinction of speakers and screens — the very heart and soul of *Sound+Image* — but is it really any bolder than Microsoft foreshadowing the end of the PC era?

Derek Powell

Clearly too, Microsoft is interested in Windows for more than just Office applications. While Media Centre is no longer part of Windows 10 (perhaps reflecting the slide in importance of the PC platform) another announcement at the same conference revealed that the new Edge browser will come with built-in support for Dolby Surround sound. Significantly, this includes Dolby Digital Plus portable mode, aimed at optimising sound through earphones or laptop speakers. Entertainment is definitely gearing up to be phone friendly.

Focus on 'phones

Let's take this a little further into our world of sound and images. If our smartphone does become the single device that powers our work and life, it will certainly become the focus of our entertainment.

No-one is yet even hinting at removing the ability to cast content from your phone to a bigger sound system and screen. But will this turn out to be just a legacy thing for anyone over the age of 30? New generations are



The Imitation Game



2014 – Roadshow Entertainment

What does one think about ‘biopics’? There are a lot of them about. According to IMDB the first five of the breed were made in 1899, all concerning Alfred Dreyfus, a French officer accused of passing military secrets to the Germans. (Poor Dreyfus wasn’t exonerated until 1906.)

Since then the genre has grown, well, quite a bit. There were more than 4000 movies biographical movies released in 2014, again according to IMDB.

The problem is that even an actual documentary about a person, or a past person, may be less than entirely truthful. A movie about a person can depart even more from the truth, yet seems convincing through the occasionally dark arts of movie making. The better

the movie as a dramatic work, the more likely that its story will come to be seen in the popular imagination as what actually happened.

So in this way ‘The Imitation Game’ is both wonderful and pernicious. As a dramatic work it is first class. The acting of Benedict Cumberbatch as Alan Turing is impeccable. As is that of Alex Lawther, who plays his much younger school self. Keira Knightley is Turing’s platonic love and intellectual equal, or perhaps superior. The drama of Turing fighting through the limited vision of his commander, the inferiority

of his co-workers, his own limitations as someone apparently on the Asperger’s scale, is moving, thrilling, powerful.

But, in reality, Knightley’s Joan Clarke was not recruited by Turing, but by Gordon Welchman, who has been ‘disappeared’ in this movie even though he created the ‘diagonal board’ improvement to the ‘bombe’ that is attributed in the movie to Hugh Alexander. The movie’s letter from an isolated Turing to Churchill was not to obtain funds to build the ‘bombe’, but from Turing and his colleagues to build many more bombes. Indeed, while eccentric, he

blu-ray reviews

by Stephen Dawson



And the horrific injustice of Turing's prosecution for gay activities, leading to his 'chemical castration' and subsequent suicide, is laid bare for modernity's astonished scorn.

'The Imitation Game' is, in my view, a flawless piece of drama, but a highly flawed biography. I just hope that it inspires viewers to have a look at the relevant articles in Wikipedia, so that they know the truth.

The movie is presented with plenty of MPEG4 AVC bits — 30Mbps of them in fact — for an extremely fine and detailed



broken. The German Navy began to suspect this from the pattern of some Allied activities, so in 1942 they added an additional rotor to the Enigma machine, frustrating Bletchley's efforts for ten months.

Yet, yet, yet. Even though misnamed, we get to see what the Bombe actually looked like (there were actually a couple of hundred of them, scattered all over,

by the war's end; the risk of the whole effort being taken out by one errant German bomb could not be contemplated). We are reminded of Joan Clarke, a rare person indeed who deserves to be better known. We are advised, correctly, that knowing another's secrets is of limited value unless they don't know that you know.

was not considered to be at all Asbergery. While he conceived the idea of improving on the Pole's 'bombe' breakthrough, he didn't build it himself. That was contracted to the British Tabulating Machine Company. The word 'bombe' is never actually used in the movie.

As to one of the points of high drama, Bletchley was not in fact entirely successful at keeping the German's from discerning that Enigma had been

look. Exceptional sharpness has been delivered in this rendition of the story. A stylised colour cast has been employed, separating a little the primary colours from each other to deliver a slightly watercolour look. I found this very pleasing to the eye.

The sound is generally appropriate to what is a talky kind of movie. But occasionally there are flashes of major surround. Indeed, during a bombing raid scene there's a marked quantity of material able to be extracted by Dolby Surround processing and sent to 'Atmos' ceiling speakers.

The disc also provides a reasonable amount of extra material: a commentary track, a featurette and half an hour of Q&A highlights.

SPECS

THE IMITATION GAME

MOVIE: ★★★★★ **PICTURE:** ★★★★★

SOUND: ★★★★★ **EXTRAS:** ★★★★★

DIRECTOR: Morten Tyldum

STARRING: Benedict Cumberbatch, Keira Knightley, Matthew Goode, Rory Kinnear, Allen Leech, Matthew Beard, Charles Dance, Mark Strong, Alex Lawther

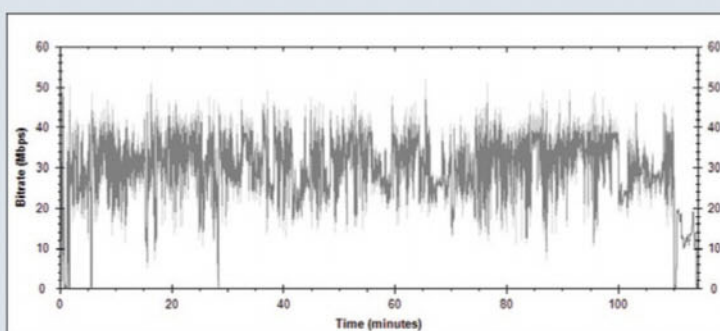
RUNNING TIME: 114 minutes

PICTURE: 2.35:1, 1080p/24, MPEG4 AVC @ 30.00Mbps

SOUND: English: DTS-HD Master Audio 24/48 3/2.1 @ 3761kbps (core: DTS 24/48 3/2.1 @ 1509kbps); English Audio Descriptive Service, Commentary: Dolby Digital 2/0.0 @ 224kbps

SUBTITLES: English

FEATURES: Ultraviolet; 2 Deleted Scenes (1080p/24 - 4 mins); Featurette (1080p/24 - 23 mins); Q&A Highlights (1080p/24 - 29 mins)



Video bit-rate for 'The Imitation Game' main feature

WIRELESS SPEAKERS / SPEAKER PACKAGES

Wireless speakers

Focal's XS Book Wireless



One of the most active categories of recent years, wireless speakers can use Bluetooth, AirPlay or DLNA, or can even form part of a coordinated multiroom system (like those reviewed in-depth in this issue). All the models below have won Sound+Image Awards.

Make and model	Price	Award	AVHub	Website	
Bose SoundLink Mini II	\$249	HC 2014	✓	www.bose.com.au	Bose's Bluetooth speaker now in MKII form, a sweet-spot of sound and size.
Pure Jongo T6	\$399	HC 2015		www.pure.com.au	The largest of the Pure Jongo multiroom speakers – pair them in stereo for a truly massive sound.
Bose SoundTouch Portable	\$499	HC 2015		www.bose.com.au	Now with SoundTouch Series II software, Bose's portable player is one of its good 'uns.
AktiMate Micro B	\$549	W 2015	✓	www.aktimate.com.au	Triple award winner (also HC 2014, W 2012), the Bluetooth/USB Micro B is a great desktop pair.
Focal XS Book Wireless	\$549	W 2015		www.nadist.com.au	Wireless units rarely create good stereo – the Focals are an exception, using two connected units.
Philips M1X-DJ	\$550	HC 2015		www.philips.com.au	Designed with Armin van Buuren, using djay 2 app for desk dancing or Bluetooth for streaming.
B&W Zeppelin Air LCM	\$600	W 2012		www.convoy.com.au	The Zeppelin design still sounds great with LCM tag, and is now better value than ever.
HEOS 5	\$649	W 2015	✓	www.heosbydenon.com.au	The middle of three wireless multiroom speaker units in the HEOS by Denon ecosystem.
Sonos Play:5	\$649	HC 2011		www.sonos.com	A stunning speaker unit when launched, now under siege from the new multiroom systems.
AktiMate Mini+ B	\$795*	HC 2013		www.aktimate.com.au	Now updated with Bluetooth and retaining our recommendation for its superb performance.
NAD Viso 1	\$899	W 2013	✓	www.nad.com.au	Slightly weird but making a lovely big sound, combining Bluetooth with a physical iPhone dock.
Loewe AirSpeaker	\$999	W 2013		www.loewe.tv/au	Stylish and colour coordinated, the AirPlay-equipped Loewe proved a sophisticated performer.
AktiMate Blue	\$1,095	HC 2014	✓	www.aktimate.com.au	Large active speakers with Bluetooth, USB and other inputs – almost a full system solution.
B&W A7	\$1,300	W 2014		www.convoy.com.au	B&W's wireless units are sophisticated in every way and make beautiful room-filling music.
JBL Authentics L16	\$1,999	W 2015		www.convoy.com.au	The size and 70s' styling may not be for everyone, but one of the best speaker units ever.
Cabasse Stream 3	\$2,299	HC 2014		www.avrevolution.com.au	A 2.1 sub and spherical sats streaming Bluetooth and DLNA with excellence.

Speaker packages

Pioneer's Andrew Jones'-designed FS52



If you're after true surround sound, you need more than a soundbar! These packages provide matched 5.1-channel speakers (easily expandable to 7.1 or beyond), and since everyone of the packages listed here is an award-winner, they each deliver top levels of performance and value for their price.

Make and model	Price	Award	AVHub	Website	
Boston Acoustics SoundWare XS 5.1	\$849	HC 2011		www.qualifi.com.au	Still great value, this neat 'almost-cubes plus sub' system is flexible and sounds impressive.
Pioneer FS52 speaker package	\$1,249~	HC 2014		www.powermove.com.au	Amazing Andrew Jones' designed 5.1 package. ~Contact Powermove for latest pricing.
Aaron MiniMax	\$1,349	HC 2012	✓	www.aaronhifi.com.au	Tremendous low frequency power combined with a versatile satellite speaker system.
Boston Acoustics A Series	\$1,999	W 2012		www.qualifi.com.au	A good value package that is less about OMG and more about getting the sound "just right".
Jamo 360 S35HCS8 speaker package	\$2,399	W 2014	✓	www.qualifi.com.au	Big music and movie sound from a small and stylish 'Omnipolar' package.
Dali Stile package	\$3,310	W 2011		www.dali.com.au	Presents a seamless soundscape that's immersive and involving. Excellent stereo performance.
Whatmough Synergy3 package	\$3,799	HC 2011		www.whatmoughaudio.com.au	Quality design in an attractive and room friendly lifestyle aesthetic. Powerful and deep bass.
KEF Audio T305	\$3,899	W 2012	✓	www.advanceaudio.com.au	Perfect mates for panels, the space-efficient T305 package performs like a much bigger system.
Aaron Hyperboloid 300 package	\$4,397	HC 2011		www.aaronhifi.com.au	System available with or without sub. Innovative drivers and good design result in thrilling sound.
PSB Speakers Imagine speaker package	\$7,146	W 2014	✓	www.qualifi.com.au	Beautifully-designed speakers that also sound superb from the 40-year-old Canadian company.
Pioneer FS51 speaker package	\$1,299*	HC 2012	✓	www.powermove.com.au	*Great Andrew Jones design, now superseded by the FS52 pack (see above).
Q Acoustics 2000i Series 5.1 Cinema Pack	\$2,116*	HC 2014		www.westan.com.au	*23cm-high sats, plus centre and unusual sub, excellent performance. Price varies with finish.
Krix Rhythmix speaker package	\$2,995*	W 2013		www.krix.com.au	*Superseded, but a Rhythmix/Sonix/Atomix/Seismix Cube set-up today would be \$3046.



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LOUDSPEAKERS

WELCOME Our buying guide is based on the Sound+Image Awards we present each year – the very best value at each price level. We list all still-available products, varying categories each issue. This time we have all our speaker categories (stereo, wireless & surround packs).

Loudspeakers

Krix Acoustix MkII

Every model listed here has won a Sound+Image award – they represent the height of loudspeaker design and each offers top-value performance at its price, whether low or high! A '✓' means you can read our full review on AVHub.com.au. Different finishes can change the pricing, so check with the dealer or manufacturer.



Make and model	Price	Award	AVHub	Website	
Xavian Bonbonus	\$499	HC 2014	✓	www.finallink.com.au	The first 'low-cost' Xavian is a great success – a solid small package with plenty of colour options!
Q Acoustics Concept 20	\$929	HC 2015		www.westan.com.au	Amazing results from usefully compact standmounters; their optional matching stands are \$729.
B&W 685 S2	\$999	W 2015	✓	www.convoy.com.au	Hugely engaging and musical, they performed above many speakers at double the price.
Focal Chorus 706	\$1,050	HC 2015	✓	www.nadist.com.au	Classic cabinet design (gorgeous walnut veneer) yields superb imaging and highs, glorious mids.
Krix Acoustix Mk2	\$1,195	W 2015		www.krix.com.au	Three-driver two-way standmounts that sound like floorstanders with outstanding soundstaging.
KEF X300A	\$1,249	W 2014		www.advanceaudio.com.au	KEF shows how USB computer audio should be done. Also a wireless version at \$1599.
GoldenEar Technology Aon 3	\$1,645	HC 2014	✓	www.kedcorp.com.au	Strangely-shaped standmounters combining active and passive drivers to great effect.
Krix Phoenix mk2	\$1,795	W 2014	✓	www.krix.com.au	Usefully small floorstanders with a really big sound, amazingly lucid and highly accurate.
Krix Epix	\$1,995	W 2015		www.krix.com.au	In-wall speakers (price is per speaker) we are happy to recommend, based on Krix's Neuphonix.
Orpheus Apollo V1	\$2,000	HC 2012	✓	www.orpheusaudio.com.au	Beautifully crafted, delivering fast and tight bass, smooth midrange and extended treble.
KEF LS 50	\$2,299	W 2013	✓	www.advanceaudio.com.au	Inspired by the classic LS3/5A, exemplary build and sonics combine in this superb speaker.
Whatmough P28-SE	\$2,699	W 2012		www.whatmoughaudio.com.au	The DNA of the P33i but at high value, floorstanders a class above their price (varies with finish).
Equinox Eclipse	\$2,900	HC 2013	✓	www.equinoxaudio.com.au	The handcrafted Eclipse sounds ultrasmooth and uncoloured, with extended highs, natural lows.
Sonus faber Venere 2.5	\$3,799	HC 2014		www.synergyaudio.com	Italian design with Chinese build - great value and exciting presentation from these stunners.
Aaron HMF-600MkII	\$4,499	HC 2011	✓	www.aaronhifi.com.au	Hume L'Estrange's Hyperboloid marvels MkII, deep extended bass, superb mids and highs.
Jamo C 109	\$5,690	HC 2015		www.qualifi.com.au	The flagship of the Concert Series from now Klipsch-owned Jamo, exciting and highly dynamic.
Atlantic Technology AT-1	\$5,900	HC 2012	✓	www.networkav.com.au	H-PAS technology for powerful bass, extended highs plus an articulate midrange – great speakers.
Yamaha Soavo NS-F901	\$5,999	W 2015		au.yamaha.com	Glossed like their pianos and equally musical, the Soavos sound realistic, detailed and musical.
JBL 4429 Studio Monitor	\$7,999	HC 2013	✓	www.convoy.com.au	Stunning studio-style sound with power and dynamics – one of our longterm reference designs.
Sonance Landscape Series	\$8,000	W 2012		www.ambertech.com.au	Outdoor garden speakers with clever sub-sat system for even coverage. Price varies with set-up.
Whatmough P33i Signature	\$9,500	HC 2012		www.whatmoughaudio.com.au	Slim but tall, surprisingly heavy, and superbly balanced performance. Price varies with finish.
Sony SS-NA2ES	\$9,999	W 2014	✓	www.sony.com.au	Sony surprised many by taking our top 2014 award for these sophisticated, sweet floorstanders.
MartinLogan Ethos	\$9,999	W 2012	✓	www.audioactive.com.au	Effortless electrostatic sound supported by conventional bass drivers. Lovely; sound the gong.
Audio Physic Virgo 25 plus+	\$19,400	HC 2015		www.radianceav.com.au	An outstanding 25th anniversary design, tonally accurate and detailed. Price varies with finish.
Vivid Audio B1	\$19,900	HC 2013	✓	www.avation.com.au	One-piece with its stand, the B1 is artwork and speaker combined, expertly voiced and refined.
B&W 802 Diamond	\$21,000	W 2013	✓	www.convoy.com.au	Magnificent – the Abbey Road references are an utterly musical and thrillingly smooth listen.
Whatmough Signature Progeny	\$28,000	HC 2015		www.whatmoughaudio.com.au	Descendent of Whatmough's ultimate Paragon, revelatory resolution and huge delivery.
Dynaudio Confidence C4	\$31,999	HC 2011	✓	www.dynaudio.com/au	Immaculate build & design, superb sound commensurate with their high-end aspirations.
Vivid Audio GIYA G3	\$45,000	W 2014		www.avation.com.au	We gave a special Judges' Choice award for Laurence Dickie's sonic sculptures, a genuine classic.
Wilson Audio Sasha Series-2	\$51,795	HC 2015		www.advanceaudio.com.au	Profound frequency-wide impact with an immersive soundfield, Wilson improves a classic.
Wilson Audio Alexia	\$79,295	W 2014	✓	www.advanceaudio.com.au	Heroic construction and mystery compounds, delivering music beyond all expectations.
Kyron Audio Kronos	\$82,225	W 2015		www.kyron.com.au	Our speakers of the year, Best Sound in Show – world-class Australian system speakers.
TAD Reference One	\$88,000	HC 2014		www.pioneer.com.au	Pioneer's 'Formula 1 racing division', their Reference Series flagships did not disappoint.

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*DTS:X available via update due late 2015. Please check au.yamaha.com for DTS:X and Dolby Atmos model compatibility.



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